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MAY, 1890.

OPEN AIR flower gardening rarely commences in this region much before the first of May, and it is not until the first of June that we really feel •

secure against late frosts. The twenty-ninth of May, last year, was the time of the great freeze that wrought ruin in the gardens and orchards over a large area. On the arrival of May, however, one expects to sow flower seeds in the open ground, commencing with the hardier kinds. Those that are best for transplanting should first be sown in close rows in a seed-bed composed of light soil, and sheltered from the colder winds and exposed to the sun. Here the plants can be tended, a large number in a small

space, during the time of tenderest growth. Some of the kinds that do best by growing in the seed-bed and transplanting are *Amarantus*, *Antirrhinum*, *Ageratum*, *Aster*, *Balsam*, *Brachycome*, *Calendula*, *Campanula*, *Catchfly*, *Celosia*, *Daisy*, *Dianthus*, *Gaillardia*, *Godetia*, *Lobelia*, *Lychnis*, *Linum*, *Marigold*, *Mirabilis*, *Myosotis*, *Mesembryanthemum*, *Nemophila*, *Nierembergia*, *Nicotiana affinis*, *Pansy*, *Phlox*

Drummondii, *Petunia*, *Salpiglossis*, *Salvia*, *Ten-Weeks Stock*, *Scabiosa*, *Whitlavia* and *Zinnia*. Any of these varieties may be sown in a hot-bed or cold-frame and brought along more quickly, but those who have neither of these conveniences may succeed well with a piece of light, rich soil made mellow and fine, and plants raised in this way are hardy and will bear transplanting well.

When the seed-bed is made the soil should be dry, so that it will crumble as turned from the spade. In this condition

it can be raked very fine, as it should be to receive the little seeds. A quarter of an inch may be named as about the proper depth for sowing most of the seeds named above, but some of them, such as *Petunia*, *Amarantus*, *Nicotiana*, and others that are very fine, need the lightest covering possible. If the soil of the seed-bed is not as light as desirable it is a good plan to cover the seeds after sowing them in the drill with fine sand. This will enable the little plants to push their way easily to the light and air. After sowing each row it should be pressed down or firmed, which may be done by laying a piece of lath over the row and pressing it well down, or by means of a small solid block of wood the soil can be patted or gently beaten; this operation brings the soil in close contact with the seeds and prevents it from drying out quickly when exposed to sun and wind. After sowing, water the bed amply with a fine-rosed pot.

Chickens are frequently troublesome, if not one's own, then a neighbor's, and to prevent their scratching in the mellow soil, a practice they greatly delight in, the seed-bed should be well protected with brush laid over it.

If it should appear that there is danger of frost after the plants are up, one should be ready to protect them by covering with cloths. When the plants have attained some strength and are an inch or two in height, according to varieties, they can be transplanted either into another rich bed, giving them more room and growing them on to a larger size preparatory to a final removal, or they can be set where they are to remain to bloom.

If one has plenty of room and the facilities for raising a large number of plants, he can freely indulge his taste, and have a garden of great variety, but when conditions limit the number to comparatively few, the kinds should be carefully chosen to suit circumstances. Probably there is no more productive source of error and consequent disappointment than in this one thing, trying to raise certain plants in places and under conditions unsuitable to them; and the proper selection of plants for particular soils and places marks unmistakably the skill of the cultivator. Some plants, like the *Portulaca*, the *Zinnia*, the

Four O'Clock, and others, delight in the full sunshine; others, like the little *Nemophila*, and *Mimulus*, and *Clarkia*, and *Myosotis*, are better where they are shaded in the middle of the day. In some spot always shaded a low-growing, sun-loving plant is set, and fails to thrive, when if, instead, some climber had been planted and a trellis arranged for it to run on, as soon as it had reached the height of three or four feet, perhaps, all its growth above that point would be in constant sunlight, thus suiting it perfectly although its roots are shaded. The peculiarities of adaptation are different in nearly every individual case; the size of the garden, its position, its soil, its dryness or humidity, the care that can be given, the purpose for which the flowers are wanted, the season of the year when they can be most enjoyed, and many other elements may enter into the consideration of this subject.

The flowering shrubs form a very important feature of the hardy flower garden; from this source there is a constant supply of bloom from early spring until late autumn, and the plants themselves with their variety and abundance of foliage contribute greatly to the beauty of the garden.

A great variety of beautiful flowers can be had, from year to year, from the open air garden, and without annual planting, by the employment of the herbaceous perennials and hardy tuberous and bulbous plants. The *Columbines* and *Bell-flowers*, *Pinks* and *Carnations*, the *Oriental Poppy* and the *Perennial Pea*, *Sweet Williams*, *Pæonies*, *Dicentra*, *Day Lily*, *hardy Lilies*, *Lily of the Valley*, *Perennial Phlox*, *Sweet Violets*, *Astilbe Japonica*, *Japan Anemone*, and many other kinds, all with graceful and elegant flowers and borne in profusion, are among the most estimable of garden treasures. Some of these can be raised from seed, and such can have attention at this time, sowing the seeds in the same manner as those of annuals, but leaving the plants longer in the seed-bed or the temporary bed to which they may be transplanted, and giving them a final removal to their permanent quarters in early autumn. Others of them are increased by division of the roots, and these can be procured and set at this season.

Another class of great excellence con-

sists of those tuberous and bulbous plants which bloom in the open garden, but require to be removed in the fall and kept warm during winter. Among these are the Dahlia, the Gladiolus, the Tuberose, the Tigridia, the Tritoma, &c. The Gladiolus is especially esteemed for the abundance, freedom and beauty of its bloom, and the ease with which it is managed. At this season, too, can be set all the many kinds of climbing plants, such as the Virginia Creeper, Japan Ampelopsis, Trumpet Creeper, Climbing Bittersweet, Dutchman's Pipe and the different varieties of Clematis, which do so much

to clothe porches and verandas and blank walls. Roses of all kinds, both the hardy and the tender, can be set this month, and what is a garden without Roses?

"The breath of Spring-time, at this twilight hour,
Comes through the gathering glooms,
And bears the stolen sweets of many a flower
Into my silent rooms.

* * * * *

"Bear thou a promise from this fragrant sward,
To him who tills the land,
Of springing harvests that shall yet reward
The labors of his hand.

"And whisper, everywhere that earth renews
Her beautiful array,
Amid the darkness and the gathering dews,
For the return of day."

THE GARDENER'S PROSPECT.

After the unfavorable season of the past year it is not strange that truck-growers and fruit-growers in all parts of the country have felt some anxiety as they have taken up their work for the present year. The extreme Southern States were badly hit by frost the last of February and early in March. This will have the effect to reduce their receipts and to make their crops later. Some injury resulted to Orange trees in Florida, and in the Gulf and the Southern Atlantic States the Peach crop is lost. Strawberries were injured to some extent. At the present time (April 15th) the prospect in the Northern States is good for a crop of Apples, and probably a light amount of Pears. In some localities the Peach buds are yet safe, but over the large areas specially devoted to this crop there has been severe injury, and, without doubt, the output will be small. But this is placing the situation in the best light. The Missouri Peach crop is lost and Pears nearly so. The orchards in the peach region on the eastern shore of Lake Michigan are badly injured. The reports from New Jersey are particularly depressing, as they detail the losses not only of the present year's crop, but of the entire trees by the thousands. Lists are given of the names of proprietors, with their residences, in which appear the losses of trees in such numbers as two thousand and five thousand and seven thousand, and other such considerable numbers. The growers are represented as being despondent. The Peach orchards of the Delaware penin-

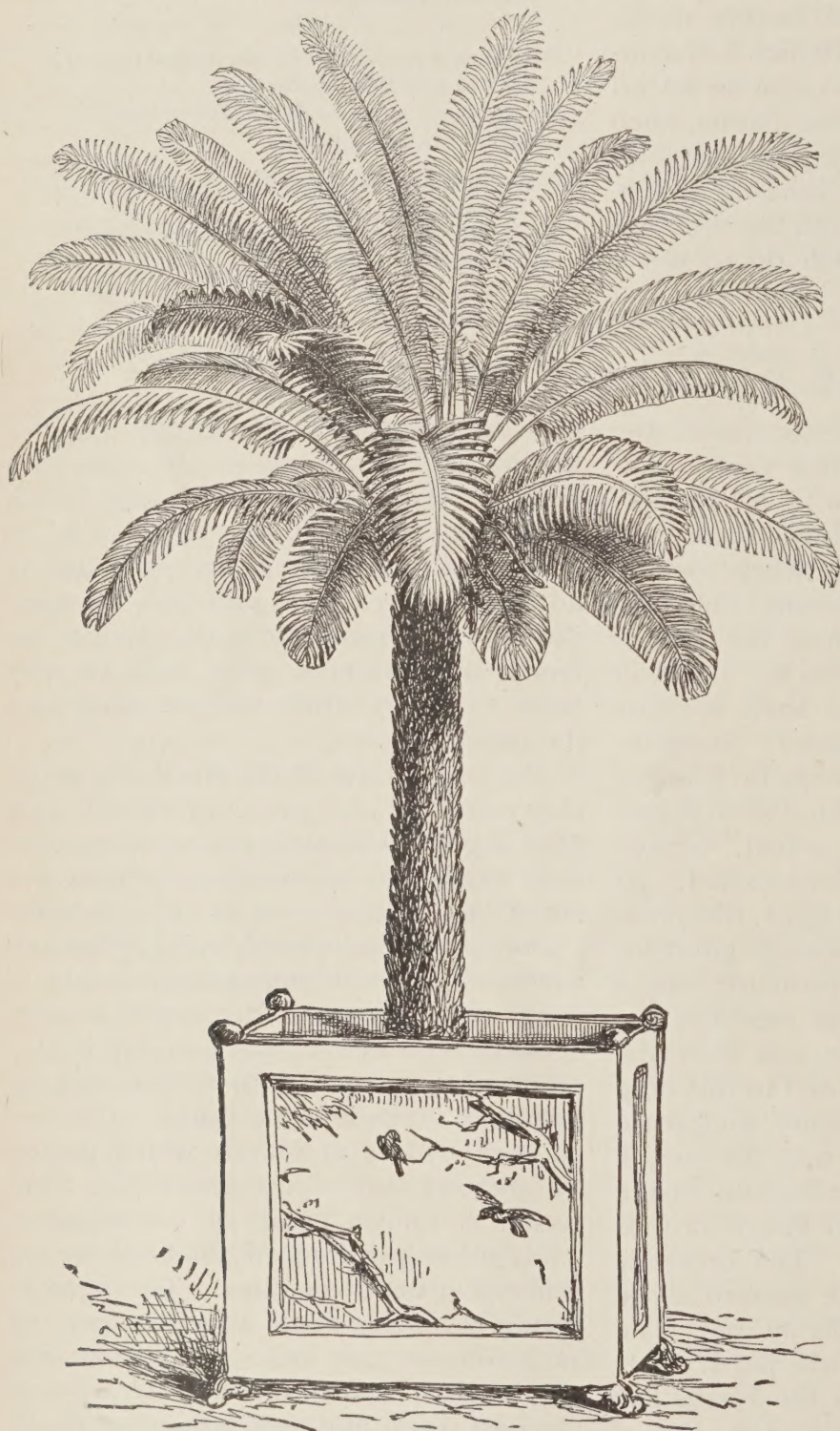
sula are greatly damaged, and the production will be very light. In some portions of Western New York the Peach buds are largely destroyed, while in others, although they are prematurely advanced, they are yet perfect. The condition of the Apple orchards all over the North is considered good, and we may hope that this fruit will be abundant the present season.

The small fruits at the North are probably safe, and the prospect of a Grape crop is good, although vineyardists, with their experience of frost and mildew and rot of last year, are not at all sanguine.

Our spring has opened with sudden and severe changes of temperature as one of its weather phases, and electric storms, accompanied by rain and hail, are beginning to be reported, with their damaging results to crops and buildings. The tornado of the last of March, which visited its greatest fury upon Louisville, Kentucky, is known to all of our readers; many other portions of the Ohio valley suffered at the same time. The weather certainly carries some ugly features, but as gardeners and fruit-growers we can only push forward courageously, and do our best work, and then leave the result to time. One of the greatest chances of loss to the farmer or gardener is a delay in work, so as to get behind the season. To take time by the forelock is absolutely essential to the best success. It is very possible that we may lose more by our own neglect, or oversight, or bad operations than by any great calamity of nature.

CYCAS REVOLUTA.

Cycas revoluta, or, as it is more popularly known, the Sago Palm, may be described as being an ornamental, evergreen, greenhouse shrub, belonging to the natural order Cycadaceæ, and having a cylindrical, usually unbranched, stem, surmounted by a crown of handsome, pinnate, dark green leaves of thick texture, and from two to six feet in length, according to the size and age of the plant. Although



CYCAS REVOLUTA.

it is popularly known as the Sago Palm, the title is an erroneous one, since it is not related to the Palms, and furnishes none of the Sago of commerce. In its native home, however, the pith contained in the trunk is, by a course of preparation, made into an article of food somewhat similar to the Sago, and which is in use for several months in the year, none of it, however, is exported. From its use in its native home, I presume, the error arose in which so many suppose it to be the plant that furnishes the Sago of commerce.

It is a native of China and Japan, whence it was brought in 1737; but having been introduced into Cuba, Mexico and various other parts of this continent, it is now more plentiful in the home of its adoption than in its native country.

As a decorative plant for the window garden while small, the lawn during summer, or the greenhouse or conservatory during winter when large, the

Cycas is surpassed by none, as on account of the thick leaves the plants are not liable to receive injury; besides this, they are easily cultivated, and are free from all insect pests.

To cultivate the *Cycas* to perfection it should be given plenty of pot room for its roots, a compost of two-thirds turfy loam, one-third well decayed manure, and a good sprinkling of bone-dust. In potting, see that the pots or tubs are well drained, and be very careful not to injure the thick, rope-like roots.

During the plants' season of growth they should be given as warm and moist an

atmosphere as one has at command, and an abundant supply of moisture both overhead and at the roots, and if at all possible, they should be kept inside until the leaves have perfected their growth and become perfectly hardened.

During the winter months a temperature of from 45° to 50° will be sufficient, and care should be taken not to water too freely, but do not allow the plants to become absolutely dry at the roots.

Young plants are usually obtained from suckers, which are produced at the base of the larger plants, but as these require special care, and are of slow growth, amateurs and others will save both time and patience by purchasing as large specimens as possible, and they can be had of most of our prominent florists, at various, but moderate, prices, considering the time required to raise them.

CHAS. E. PARNELL, *Queens, N. Y.*

GARDEN ASTERS.

If there is a flower garden anywhere in the world that has not Asters in it, I hope this little tribute of mine to their beauty may help to sow the seed there, for, surely, until the Chrysanthemum comes the Aster is autumn queen of the garden.

This season mine have been wonderfully beautiful and perfect, and every

New Rose. The flowers are of good size and very perfect, and the plants average a height of about two feet. The stem from the root to the very top bears flowers, all of which open near the same time, and have stems just long enough to give them grace. Some of the flowers are double to the very center, and others have an anemone center of golden-rayed stamens, which, to my mind, adds much to their charm. One of my loveliest, this summer, was a large flower, dark, rich blue on the outer petals, shading up to a silvery tint against which lay this golden heart. I do not believe there is another variety of Aster that will delight you so much with form and delicacy and depth of coloring as will the New Rose. Every one does not care for the immense proportions of the larger flowered varieties, and I hope nobody will ever see "Prize



NEW ROSE ASTER.

friend who passed our gate came in to see my flower show and beg for seeds. There are many varieties of Asters, and the same garden has seldom room to grow them all in one season. My plan has been to try two or three new varieties every summer, and thus insure the survival of the loveliest; but where all are so lovely this is a somewhat bewildering process, and the space and situation one has to grow them in must help decide.

One of the finest tall varieties is the



DWARF BOUQUET ASTER.

Asters" growing in my garden while there are so many lovelier smaller ones.

Imbrique Pompon is almost round in shape, it is so very double, and the flowers seldom measure more than an inch across. Most of the shades are deep and dark, but the pale blue and pure white ones are exquisite. It is not quite so tall as the New Rose, and the blossom does not last so long. I have

known the flowers of the latter, though they all opened at the same time, to last for two months.

Dwarf Bouquet is a cunning little plant, well named, for although not more than six inches high, it is a mass of flowers already arranged for hand or vase.

Asters love a deep, rich soil and plenty of sunshine. They transplant quite readily and grow very fast through July and

August. The flowers are at their finest here during the latter part of that month. The taller varieties should be planted about twelve inches apart, and the smaller ones six or less. Give the tall, large flowering varieties stakes to keep them from breaking with their load of blossoms, and be sure that for all extra care you give them they will amply reward you.

L. GREENLEE.

THE MARIGOLD.

The Marigold—a name pleasantly suggestive of some charming MARY who was so beautiful that she needed only a blossom for her dowry—was a flower of fashion three generations ago; it was given an honored place in the garden; it was gathered to fill the blue vases that graced the “keeping-room” mantel, or to place in the wide belt of the belles’ short-waisted gowns. Then came a period when fickle



MARIGOLD.

fancy changed, when it was regarded as coarse, and banished to the kitchen garden to occupy some out-of-the-way corner as an humble pot-herb. Now it is again restored to favor and very deservedly, for it adds more to the brilliancy of the garden than almost any other flower; it is a dazzling sight, with its wide range of brilliant coloring, from the palest yellow to flame-like orange—a veritable cloth-of-gold. And even the once despised odor, now that all sorts of odd things are in vogue, is found to be delightfully pungent.

The true Marigold, *Calendula officinalis*, is indigenous to the south of Europe, and has long been cultivated for its medicinal qualities, as well as for a pot-herb. The genus *Tagetes* is a native of Mexico and of South America, whence a few years since it was brought to France. It is not without its folk-lore—the French call it *sou-cis* (cares), and it is carefully excluded from the flowers with which the country folks tell their fortunes. The *Calendula* is also

in disfavor for this purpose, as it is considered unfavorable to faithful love—its language being variously given as “jealous love” and “contempt.”

The Germans give the *Calendula* a pretty name, *ringel-blume*, ring-flower, while by some authors its language is given as “sacred affection.” We are told that it was called *Calendula* because some of the species were supposed to be in blossom every month of the calendar. The poets loved the flower; the “ardent Marigold,” KEATS called it. SHAKESPEARE numbers it with the flowers of “middle summer,”

"The Marigold that goes to bed with the sun,
And with him rises weeping."

The ease with which this flower is cultivated should be one of its recommendations for a prominent place in the garden. A well prepared bed of good rich soil in which to transplant from the hot-bed, or in which to sow the earlier varieties is all that is necessary. While some of the *Tagetes* varieties are better planted in the hot-bed, the *Calendulas* may be sown in the open ground, and once established will self-sow, furnishing plenty of material for ribbon-beds. I saw an extremely effective bed of this sort last season. It ran parallel with a hedge at the foot of a sloping lane; two rows of *Euphorbia*, or *Medusa-head* formed the background, and two rows of *Calendulas* the foreground. The contrast between the pale green and snow white of the *Euphorbia marginata* and the delicate but brilliant yellow and orange of the *Calendulas* was charming. An oval bed of *Calendulas* bordered with scarlet *Phlox* is effective.

The Meteor is an excellent variety of Marigold, but the Prince of Orange is even more showy. It is perfect in form and regularly marked, the stripes around each petal are of a deep orange color,

making a brilliant appearance. Of the so-called African varieties, *El Dorado* is the acknowledged king. The plants are large and bushy, of good habit, and single plants have been known to have from seventy-five to one hundred flowers in full bloom at one time. The blossoms are globular, as perfectly double as a show *Dahlia*, and of enormous size. They embrace many shades of yellow, from its palest primrose to lemon golden and deep glowing oranges.

Among other sorts, the old-time *Tagetes signata pumila* should be planted. It forms a symmetrical bush, globular, with rich green foliage, and densely covered with yellow flowers. The best effect is secured by planting the tall African varieties in the background and the dwarf French as a foreground. The latter have among them many shades from delicate yellow to the richest maroon, and are both self-colored and mottled and striped in an infinite variety of markings.

It is a good plan for every amateur to have some specialty, and whoever makes one of the Marigold, in its different varieties, will have a display which will be unique and unrivalled in brilliancy of coloring.

ADA MARIE PECK.

A BEGINNER IN FRUIT-GROWING.

NUMBER 7.

The question what to plant for a catch crop is an important one to the fruit-grower at any period of his career, but especially so to the beginner, who is paying out all the time without any possibility of gathering a profitable crop from even the Strawberries in less than a year. To the difficulty of growing two crops at the same time, without injury to either, is added the question of gathering and the problem of profit, as affected by the increased cost of production. The tree fruits give but little trouble, as any hoed crop can be grown, excepting such as require very high manuring, like Cabbages and Onions. Of the small fruits Strawberries give very little opportunity for growing anything else, although some plant them twenty inches apart in the row and plant a single eye of some dwarf Potato, like Early Ohio, between. Onion sets may also be put in, provided it is done early; and on high priced land, near a city,

the rows of Strawberry plants may be set four or four and a half feet apart, and a row of early Cabbages, or Onions, or early Sweet Corn may be grown; but this means a good deal of hard labor that must be hired cheaply if a profit is to be expected.

An acquaintance of the writer once tried the experiment of growing early Cabbages between rows of Strawberries planted three feet apart. The ground was a long neglected garden spot that had produced a crop of weeds three years in succession. There was no room for horse cultivation, and hand hoeing did not push the Cabbages as horse work would have done, and they were only second early, bringing a low price, which did not begin to pay for the extra hand work required. The Cabbages, which should have been out of the way by July 15th, were not marketed until September 1st, and then the Strawberries had in many places run across the row, and the

cultivator belied its name and became a destroyer.

After the first year Strawberries can be used as a succession crop, and to some degree may be considered in the light of a second crop the same season. Several market gardeners with whom I am acquainted have a special rotation in which the Strawberry plays an important part.

An early summer crop of Peas, Potatoes or Cabbage is taken off, and in September the ground is planted with Onion sets of the Multiplier variety, known in Northern Ohio as the Egyptian. These are planted in rows one foot apart and every fourth row is planted with the strongest and most vigorous sets. One gardener gives these fourth rows a dressing of superphosphate or wood ashes in October, hoeing it in. In the spring these rows are marketed first, and a row of Strawberries planted. By the last of May the entire crop is marketed and cultivating is done with the horse afterward. In this way a profitable crop is marketed the same season.

PETER HENDERSON'S way of following a summer crop with potted Strawberries, thus gathering a crop of fruit in the following June, cannot be profitably undertaken without a home grown lot of plants, and then only on very rich soil and with cheap labor. Where the writer lives, labor in the latter part of July is worth \$1.50 per day, with dinner, but in Cleveland the best kind of gardening help—Bohemian women—can be hired for ninety cents per day, boarding themselves. As unskilled help will rarely pot or plant more than one thousand per day, the difference at sixty cents per thousand means—allowing fourteen thousand plants per acre—an increased cost for planting of \$16.80, an amount that the ordinary farmer would be glad to have as profit on each acre cultivated.

Raspberries give a better opportunity for a catch crop than Strawberries, as a hill of early Potatoes or Beans may be grown between each two plants without interfering with hoeing, and a row of Potatoes, early Peas or Cabbages grown between the rows, if they are six or seven feet apart, all cultivation being done with a horse. No late crop can be grown with the tip-rooting varieties, as the Raspberries need the ground; but with the red suckering varieties it is different,

and late Potatoes, Squashes, Tomatoes, or most any crop can be planted.

A Cleveland market gardener planted a patch of Egyptian Onions with Philadelphia Raspberries, six by three, planting every sixth row. When the Onions were marketed, Early Cluster Cucumbers were planted in the row, one hill between each two Raspberries. The Cucumbers were nearly done by July 15th, and then the cultivator was run midway between the rows, and a crop planted for pickles, putting in a shovelful of compost in each hill. These were planted six feet apart, rowing with alternate rows of Raspberries, and ten days later the old Cucumbers were cleared up and the cultivator run each way as long as the vines would permit. The result was three crops in one season on ground that was growing Raspberry canes for another year.

Blackberries permit of growing almost any crop, as they grow for two months after the early frosts destroy tender vegetation. Low growing, early maturing Corn, Potatoes or Tomatoes are the crops I generally grow. In raising Tomatoes I put a plant between the Blackberries in the row. In growing seasons the Tomato vines will nearly cover the seven foot space. This method of planting allows the cultivation to continue nearly all summer, and the briars do not impede gathering the fruit.

In gathering Corn or Potatoes in Blackberries or red Raspberries a two-horse wagon is driven astride of one of the rows.

To sum up, briefly: Where a man is situated near a good market, has rich soil, or an abundance of well composted manure, plenty of help and the instincts of a market gardener, considerable money can be made the first summer. Plant in the row between the Strawberry plants, head Lettuce from cold-frame, Onion sets or Radishes. Plant in the Raspberry rows early Potatoes; between the rows, early Peas or early Cabbages. Plant in the Blackberries, Tomatoes in the rows, and very early Potatoes or Peas between the rows. Use lots of compost and plant the vegetables first, keeping the fruit plants heeled in and ready to set at any time. The thorough, timely cultivation absolutely necessary for profitable vegetable growth helps the fruit plants and compensates, in a measure, for somewhat increased cost of cultivation. L. B. PIERCE.

VIOLAS.

A number of our native Violets show their affinity to the Pansy, if circumstances favor, by their habit of blooming at any time from April to December; perhaps, with a few years of culture and selection, they would become as indifferent to times and seasons as their exotic relative. A Hepatica, or Spring Beauty (*Claytonia*), in autumn would be a wonder, indeed, but many wild Violets, encouraged by a little moisture, flower thus out of season year by year. How many of us stop to remember that every Pansy and Violet flower is upside down, that the upper petals are really the lower? Tip a Pansy back until the stem becomes straight and see how you like it. The earliest species is the small Yellow Violet, *V. rotundifolia*, of which BRYANT wrote:

“Of all her train the hand of spring
First plants thee in the watery mold,
And I have seen thee blossoming
Beside the snowbank's edges cold.”

But it is no earlier than the Hepatica or *Claytonia*, all are set to go off at the first glance of the sun; the poet could have found the others the same day by looking a little further. It is of the so-called stemless section of the genus, and makes no great show; its leaves are only just starting from the earth at the time, its stem is so short it may be almost or quite buried in the dead leaves, and it has no fragrance. Its chief merit is in coming so early—south lying banks in the woods may be strewn all over with its flowers, while plenty of old snow is in sight on cooler slopes and all the earth is cold and wet.

Coming soon after, and before the meadows have gained more than a faint tint of green, you may find the stemless white Violet, *V. blanda*, in spring runs and swamps in field or wood. It is the smallest of our Violets, with a few dark lines on the minute white petals, but its delightful fragrance atones for its insignificant appearance. The meadow grasses will be deep and rank in summer in the swales where it loves to grow, and even the dead stubble may conceal it, so short are its stems (scapes) and so small its flowers; you may be in the midst of a great bed in full bloom before you notice them. But collect a bunch and you may enjoy an odor more sweet and delicate to

my sense than the foreign Violets, *V. odorata*, which is little better than *Mignonette*, and *Mignonette*, to me, has merely the smell of fresh corn meal, not disagreeable, but hardly intoxicating.

Soon comes the blue or purple “rooster,” *V. cucullata*. This, like *V. blanda*, likes open fields, and is one of the few plants of our native flora that does not retreat before the plow; you may often find large clumps on ground plowed a year or two before, bearing scores of large flowers, the plants much larger in every part because of the loosened soil and the absence of sod. This sort is scentless, but it makes a fine display of color, tinting large areas with its rich purple bloom, about the time of the first Strawberry flowers. It always blossoms in autumn; a rainy fall after a drought in summer makes it quite numerous.

The *V. sagittata* lingers in swamps and wet woods until summer is here; its “rooster”-like flowers sometimes have stems a foot long. It never tints the ground, like its nearest relative; it shows solitary blooms here and there.

A shy woodland species, with white, stemless, sweet-scented flowers, seems to be the *V. primulæfolia*, its scapes six inches high are bearing their blossoms in June, amidst the great leaves of the *V. rotundifolia*, sometimes six inches long and conspicuous all summer.

The spring is still new and fresh when the woodland Violets with stems appear, the *V. pubescens*, a large, yellow sort, disposed to flower in the fall; the *V. rostrata* bringing forth quantities of flowers in autumn, as fresh and bright as though it were May instead of September, a fine species with its long, erect peduncles, its long spurs and its tint of grayish-blue, like the wild Phlox, and the *V. canadensis*, perhaps the best of the list. It sometimes forms great clumps which will scarcely be without flowers all summer, unless the drouth is severe, and always flowering in the fall. It has both beauty and fragrance; its white flowers are finely lined, there is a purple stain on its upper (lower) petals, and its scent, though not intense, is most sweet and delicate.

This, with a doubtful *V. Muhlenbergia*, is my share of the twenty-three species of this region, and of the three hundred spe-

cies belonging to the order, some of which are shrubs or small trees. A Pansy tree would not be a bad thing, if one could get it. The *V. tricolor*, which is "a cornfield weed" in England, a species from Tartary, *V. altaica*, and the Swiss, *V. grandiflora*, are the progenitors of the Pansy as we know it. Though this royal flower merits all the praise it ever had or will have, I can but feel the "Johnny jump-up" of our grandmothers' gardens, *V. tricolor*, I suppose, should not have been so entirely superseded by it, its flowers have the same rich texture, and if they were small there were a

great many more in number; while the Volcanic Beauty, or whatever the name of the last wonderful novelty may be, is making up her mind whether to grow and flower at all or not, the "Johnny jump-up" has brought forth scores or hundreds of blossoms. I have found clumps of it in full flower, self sown, in the midst of a meadow where the latest improved Pansy would hardly have sprouted her seed. And there are many worse things than a thick sod of this species, with its perennial bloom. Who will give it back to us?

E. S. GILBERT, *Canaseraga, N. Y.*

THE PAMPAS GRASS.

Years ago, when a young school girl, it was my delight to listen to a brother-in-law's tales of his travels in South America. One recital that fired my imagination, and which I never tired of hearing, was of his long rides over the vast pampas, those treeless plains, whose undulating surface is overgrown by that giant grass, *Gynerium argenteum*; a grass so tall, so thick, so impenetrable, that were it not for the labyrinth of paths crossing and re-crossing those great plains, the traveler would have as much difficulty in forcing his way as in the tangled forest jungle. Many a time I have heard my brother-in-law say, he had stood upright in his stirrups, trying to catch a glimpse of the surrounding country, but the myriads of nodding plumes waving far over his head shut him out from all but the path beneath his feet and the blue sky over his head. The view, as he described it, when looking down from an elevation, the pampas plains spread out before one, a waving sea of feathery heads, was a sight at once unusual and grand. I never forgot my interest in this wonderful grass, and when, years afterward, I had a home of my own, I determined to have a plant of it. This was easier said than done; few florists or nurserymen keep it in stock, and two or three years passed before we found a firm that advertised it, and then, to our great chagrin, we found it described as half-hardy. My husband and I had not had much horticultural experience then, and the year before we had planted so-called half-hardy Magnolias, every one of which managed to win-

ter-kill, so to us the words half-hardy seemed synonymous with wholly tender. A few more years' experience gave us more courage, and in the spring of 1886 we ordered and received a small mailing plant of our long wanted Pampas Grass. The shrubby little bunch of grass did not look as though it ever could amount to much, and in six weeks' time we could not see as it had grown any. About that time an old nurseryman made us a visit, and my husband showed him the sorry *Gynerium*, and asked him what the trouble was with it.

"Well," said our friend, "your grass is small and feeble. You put it out on the grass plat, and you dug a hole just big enough to hold the plant. You see the Blue Grass comes up to the very roots of the Pampas Grass, and the Blue Grass gets nearly all the air and sunshine, and gets all the rain away from the other. You should give it a good mellow bed by itself, making sure that the Blue Grass comes no nearer than two and a half feet of it. Stir the soil often to keep it mellow and admit the air, and if drouth sets in, water once a week all the ground will soak, then mulch afterward, and my word for it, that grass will blossom this very season." We took his advice and, sure enough, four or five plumes appeared, the whole plant reaching a height of about six feet that season.

Since then, our original plant has been divided into four. Two of these divisions we kept, and planted them in opposite beds at the head of a long walk. Nothing could be better suited for the position, or

more tropical in effect. They look for all the world like two immense fountains spouting grass instead of water. Each clump reaches a total height of twelve feet, and bears from fifty to sixty plumes each. The long, narrow grass blades which first arch upward, then sweep gracefully down to the very ground, form the fountain-like base of each plant; this base is not less than six feet in height, and far above it wave the two-foot flower heads, each borne on a long, thick stalk, as straight and

stiff as a ramrod. The outline of the plant is singularly bold and striking, yet the many curved lines and the ever-waving motion of the long, sweeping leaves, gives unusual grace. The beauty of this plant is not so much in color as in its outline. The plumes, if cut when a few inches out of the sheath, are fluffy and not dark, though never attaining the silvery white-

ness of the commercial plumes. As cutting them mars the effect of the plants, we leave ours on, though they soon lose their feathery beauty in our stiff winds.

I am inclined to think the tenderness of the plant is over-estimated. We have never protected our clumps in the slightest, and that proves them to be perfectly hardy here, in southern Missouri, and probably it is



PAMPAS GRASS.

hardy much farther north. The thick base of leaves is of itself no small protection, and as we think the grass is ornamental even when frost has turned the blades brown, we never cut our clumps down until spring. If the tops are allowed to remain, and the surface roots are further protected by a thick covering of litter, I can not see why this noble grass should not stand the winters of the Northern States, and certainly the plant is so unique and so stately in habit as to be well worth trying.

Few plants are less trouble. They like plenty of room and sun. They like good soil and to be kept free from grass. If very dry weather sets in mulching is good, and a thorough soaking once a week or the leaves will "fire" some. In spring, the top must be cut down, as the new shoots have an odd fashion of shooting out through the center of last year's stubble.

MRS. S. LA MANCE.

FOREIGN NOTES.

THE CLEMATIS.

These beautiful hardy climbing plants, of which there is such a large variety, are classified under the following types; and taking them in their order of blooming, the first is the Montana type, and which are spring bloomers. The most important are *C. montana*, which flowers in large clusters in the month of May. Next comes the *Patens* type, consisting of very bright, showy varieties, blooming principally during May and June, and of which the following are a few of the best: Albert Victor, Miss Bateman, Miss Crawshay, Mrs. George Jackman, Mrs. Quilter and Standishii.

These are succeeded by the double and single blooming varieties known as the Florida type, which flower during June and July; the best varieties are Belle of Woking, Countess of Lovelace, Duchess of Edinburgh, Fortunei, John Gould Veitch and Lucie Lemoine. All the above mentioned types flower on the previous year's wood, if well ripened, so that only the weak, straggling, or overcrowded branches should be pruned out, if a fine display of bloom is to be obtained; and this should be done as soon as the winter frosts are over.

The *Graveolens* type are late summer bloomers, but little planted; and except to run over thickets, or over the stems and boughs of trees, the flowers being small and poor in quality. Of these are *C. vitalba*, though this in the autumn is very conspicuous, with its shaggy plumose fruits, from which it has gained the name of Old Man's Beard. It is also commonly known as Traveler's Joy, or White Vine.

The *Lanuginosa* type are the next in succession, flowering from July to October, and very effective the fine and large blooms of some varieties are. Alba Magna, Blue Gem, Fairy Queen, Gem, Henryii, Lanuginosa, Candida, Madame Van Houtte, Princess of Wales and *Purpurea elegans*, are amongst the best. These varieties flower successionally on the short lateral summer shoots, and should therefore be pruned down to

about three feet from the ground every spring, to prevent them becoming long and bare of young shoots near the base, the tendency of the plants being to develop new growth at the extremities.

The *Viticella* and *Jackmanni* types flower at the same time in profuse continuous masses on the young summer shoots till the frost comes, making them very attractive. Of the former type the following may be mentioned: *Ascotensis*, Lady Bovill, Mrs. James Bateman, *Viticella rubra grandiflora*; and of the latter, Gipsy Queen, Jackmanni, Madame Grange, Rubella, Jackmanni *superba* and *Velutina purpurea*. These should be pruned so as to assist the development of strong shoots by cutting the summer growth as soon as the frost has disfigured them.

Clematises grow freely in most garden soils which are of good texture, but where it can be provided, a rich loamy soil is the best, and if this can be mixed with chalk or lime it is generally found beneficial. Thorough drainage is absolutely necessary to grow good healthy plants, and their strength should be maintained by manuring with horse or cow manure at least once a year. For planting, the spring and autumn are undoubtedly the most suitable times.

The uses to which the *Clematis* may be applied are numerous. They may be trained up verandas, walls, or trellis work; made to climb up poles, forming pillar plants; be festooned, run over masses of rockwork or rootwork, or trained over iron supports as specimens for lawns. The summer and autumn flowering varieties are also used as bedding plants, the young shoots being pegged down before they get entangled. The best effect is obtained by raising the surface of the bed, or using hooped rods, to display the flowers better, and edging the bed with white or yellowish foliaged plants. The beds should be well manured and trenched before planting, and I should recommend, where it is possible, to plant the *Clematis* permanently, so that they should not be disturbed, as

each year they would get stronger, and flower even more profusely.

A. G. JACKMAN, in *Gardeners' Chronicle*.

DWARFING HARDY PERENNIALS.

By continued observation in the direction of dwarfing plants, I am enabled to speak with confidence. In making selections of hardy herbaceous plants for given purposes from time to time, I have been compelled to omit many of the best and showiest by reason of their height, but this inconvenience is now overcome, by adopting the cutting down or "dwarfing" plan; for example, in years gone by I should never have thought of including *Chrysanthemum serotinum* or *Pyrethrum uliginosum*, as it is more generally called, in a collection of plants suited to a border not more than three feet wide, but to-day I do not hesitate in the least, as by cutting down this plant it may be had in all its beauty and freedom of flowering at from two and one-half to three feet high instead of six feet. It is in consequence a plant of far greater value than hitherto; the value of this method of dwarfing was discovered a few years ago, and quite accidentally. In the month of June I had occasion to move a large batch and replant for stock purposes, at this time it had made about eighteen inches growth, and, knowing that these latter would never pick up again after having once flagged greatly, I pruned them back to about nine inches from the base, replanted them, and gave them a thorough watering.

A week or two later, in spite of this apparent unfavorable treatment, the plants began to break away freely, and eventually they flowered at their usual time, though of only half the common height. The bed, in fact, was very effective, with its hundreds of large white blossoms, and not more than three feet high. I at once saw that plants so treated had increased value, and every year since I have allowed the plants in one-half the bed to attain to their full height, and cut the other half down at the time stated, to serve as an illustration to visitors. For large beds in parks this plant so treated would be an excellent subject.

Having satisfied myself of the utility of the method, I resolved to ascertain how it might be extended to other plants, with the result that it is equally suited for all

the taller Michaelmas Daisies, the taller herbaceous Phloxes, Sunflowers, Heleniums, many of the taller Campanulas, Delphiniums, and others of similar growth. All these are rendered eligible for even small borders, from which they were often excluded on account of their altitude. The adoption of this method will tend to open up a wider sphere of usefulness for tall growing plants, and greater numbers may now be employed in gardens, where hitherto they were not admitted.

E. JENKINS, in *Gardeners' Chronicle*.

CHINESE PRIMROSES.

The finer strains of Chinese Primrose seeds are raised only with great care, and at a large expense. The flowers are all separately fertilized by hand, that is, the pollen is applied to each flower by means of a camel's hair brush. No one has paid more attention to raising this seed, and improving the quality of the strains than has the great seed firm, JAMES CARTER & Co., of London, England. A late number of the *Gardeners' Magazine* notes with some detail the improvements they have made with this popular flower, and says:

"Few classes of soft-wooded greenhouse plants have received so large a share of attention or been so greatly improved during the past twenty years as have the Chinese Primulas. Long compelled to be content with two or three colors, the cultivator has now at his command at least a dozen distinct and beautiful shades, and a considerable variation in the form, both of the flowers and foliage. Concurrently with the increase in the number of the colors, there has been an enlargement of the size and an improvement in the shape of the individual flowers, thus showing that every detail likely to enhance their value for the decoration of the conservatory and drawing-room, and for competitive purposes has received a full share of attention. The change that has been effected is manifest on all sides; but its full significance is not apparent until one has an opportunity of seeing a large trade collection, such as that which forms such an important and attractive feature of the Forest Hill Nurseries of Messrs. JAMES CARTER & Co., at the present time. This firm, as so well known to the general body of

cultivators, has for many years past devoted a considerable share of attention to the improvement of these flowers, with the result that they have been successful in introducing several shades of color and in bringing their strains to a high state of perfection.

"At the present time there are upward of six thousand admirably grown plants in bloom, and arranged in large blocks according to their colors, they produce a striking effect. But more important than the display produced is the remarkable uniformity in the several strains, for one may search in vain through a block containing several hundred plants without finding the slightest variation, either in the habit of the plants or in the form and color of the flower."

Some of the most important types or colors are, vermilion, ruby, magenta, salmon, carmine and Holborn white; Elaine is a beautiful variety with ivory white flowers, of large size and elegantly fringed; Venus has its flowers striped and spotted on a pure white ground; Holborn Blue is a good type of blue Chinese Primrose, and of this they have recently produced a new strain, the plants of which are more robust and flowers larger; the color is said to be an effective shade of turquoise blue.

Another new variety is mentioned as having white flowers with bright carmine-pink picotee edge. The last two varieties have not yet been sent out.

The semi-double flowered varieties are especially valuable for bouquets, as the flowers hold well when cut. Prominent among these are mentioned the Empress, Princess of Wales and Snowflake. The semi-double varieties can be raised from seed as freely as the single ones.

PHŒNIX RUPICOLA.

This Palm, a handsome and useful plant for decorative purposes, has pinnate leaves which assume a graceful, pendent habit, forming a contrast to many members of this genus, which are of a stiff habit. It is of hardy constitution, thriving either in the dwelling, greenhouse or stove, excepting when subjected to

too low a temperature, which causes it to appear starved, and thus detracting somewhat from its beauty. I know of a plant which has stood in a window for the past three years without injury, a test sufficient to place it amongst the list of plants suitable for window gardening. Care should be taken not to overpot the plant. It was introduced from India in 1873, and is said to attain a height of from fifteen to twenty feet.

W. HARROW, in *Gardeners' Chronicle*.

FERNS FROM SPORES.

A writer in the *Gardeners' Chronicle* describes how he managed to raise plants from a small Fern frond, which he had gathered in 1883, and kept in a desk until last August:

As a preparation to sowing, I filled a three-inch pot nearly to the rim with good loam, and after giving it a good watering, I covered the surface with a little powdered charcoal, then taking the tiny frond (not more than an inch in length) in one hand, and a knife in the other, I scraped off the scales with the spores from the back of it upon the powdered charcoal, covered the pot with a piece of glass, and put it in a moist heat of about 65°. After having been sown for about three weeks or a month, there began to be shown signs of life, and the soil has now become entirely covered with the first green development of the young Ferns, and I am hoping that if all goes well, to get several plants from it. I am not a specialist in Ferns, nor a large grower of them, but I am a great admirer of them; and nothing I think presents so much chaste beauty as a lot of well grown Ferns, even if they are growing wild, and a bank of Ferns is worth walking a mile or two to see. I remember, some years ago, when in Cornwall, seeing a large bank completely covered with fine specimens of the Lady Fern, and the effect was truly delightful. It has been noted that there is a growing tendency in the public taste for the beauties of the floral kingdom; and running side by side, is the taste for the beauties of Ferns.



PLEASANT GOSSIP.

VIOLETS.

Blue and white, in soft array,
Over the meadows the Violets lay,
Lowly and meek, as if kneeling to pray.

A little brook goeth murmuring by,
Singing its tenderest lullaby,
While softly the Violets stir and sigh,

And to the mosses gently cling,
And dainty bits of color fling
Over the meadows wavering.

List, as they whisper, soft and low,
To the warm earth-heart below,
Where all sweet treasures spring and grow.

And the sweet bird, in yonder tree,
Sings to the Violets merrily,
Sending his heart out cheerily.

And fleeting shadows come and go
Over the grasses, swift and slow,
Down where the blossoms bloom below.

Little Violets, dainty and fair,
This one brief hour, oh, let me share
The spirit of your sweetness rare.

L. A. F., *Manchester, N. H.*

GARDEN QUERIES.

When is the proper time to trim Grape vines?

How to care for Celery through the winter, and what variety is best for family use?

Is there some way of scalding Potatoes to keep them from sprouting? If there is, please explain.

MRS. H. M., *New Palestine, Ind.*

Grape vines should be pruned, by preference, any time after the fall of the leaf and up to the first of February; but in cool climates it may be done as late as the first of April. Vines of which the pruning has been neglected until the sap is running in the spring, may be allowed to remain until they begin to push their leaves; if pruned at this time they will not lose their sap and thereby be weakened, as the leaves will convey away the excess of sap.

The dwarf varieties of Celery are justly most in favor as being in all ways most easily managed. Celery is kept through the winter in various ways, according to the quantity. The market gardener has found the most practical way to be to take up the plants, leaving undisturbed the soil clinging to the roots, and trenching them in the ground, under a low roof built over it for this express purpose.

Such a celery shed, or cellar, as it is sometimes called, gives the needed protection from frost, and at the same time allows access to the store during all kinds of weather. In small quantities, Celery may be stored in boxes in a cool cellar, packing soil about the roots and stems.

We do not know that scalding is ever practiced to prevent Potatoes from sprouting, but have no doubt that it would most effectually accomplish the purpose, although a second trial would, probably, never be made.

VIOLETS IN FRAMES.

How can Violets in a cold-frame be sufficiently protected from frost to enable them to bloom well in the spring? No fire heat obtainable.

A SUBSCRIBER, *New Bedford, Mass.*

The frames should be placed where they will be sheltered from the cold winds from the north and west. They need to be covered at night in severe weather, with thin board shutters or with straw mats. Managed in this way the frames will be sufficiently protected to keep the plants in good condition during winter. On fine, mild days air can be given for a time.

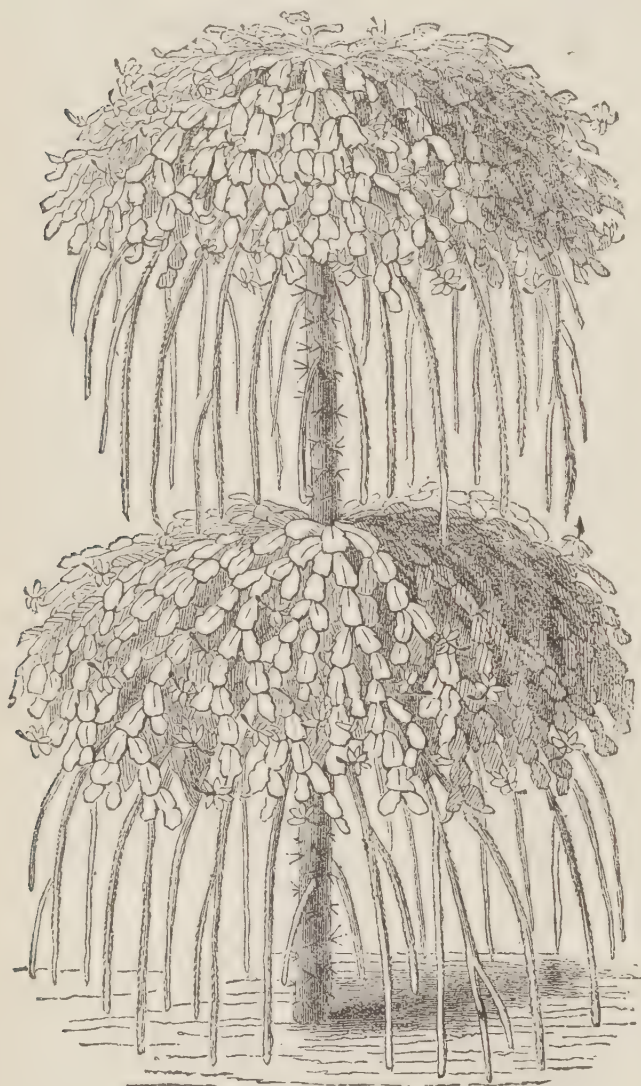
A better arrangement is to have the frames in form of a span roof, with a sunken walk under the center, and with a covered entrance porch. This gives access to the plants at all times, and they are as easily protected.

OILS OF FLOWERS.

The *California Fruit-Grower* announces that Mr. OTTO VOGEL, of East Los Angeles has secured for himself a desirable tract of land and has built a laboratory, and claims that he will give the manufacture of essential oils from flowers a fair trial. He states that there is no doubt in his mind as to the practicability of the enterprise, and that there is a large demand for the oils, application having already been made by a New York firm for all that he can produce. He is now propagating plants, which will in due time be transferred to the soil.

EPIPHYLLUMS.

The different forms or varieties of *Epi-phyllum truncatum*, or Crab Cactus, are among the most highly prized of house and window plants. Usually they are grown in dwarf form, or on their own roots. In this way, when much developed, it is necessary to suspend them as basket plants, or when in an ordinary pot, to support it on a small stand, in or-



EPIPHYLLUM TRUNCATUM GRAFTED ON A PERESKIA STOCK.

der that the drooping branches may hang freely. Another way of growing it is by grafting it upon a strong upright stock, giving it an umbrella-like form, or, as shown in the accompanying illustration, it may be in the form of a double fountain. Various members of the Cactus family which are upright in growth will serve as a suitable standard stock, but the preference is given to the strong, erect-growing *Pereskias*; *P. aculeata* is very commonly employed, but a species of still stronger growth, and therefore more desirable, is *P. Bleo*. A writer in a late number of the *Gardeners' Chronicle*

very clearly and minutely describes the process of grafting and the necessary care therewith, in the following language:

After having detached suitable pieces from the parent plant, make the base of the branchlets slightly wedge-shaped, and with a sharp knife cleave the crown, and make as many longitudinal slits in the stock as there are pieces to be grafted. The slits may be held slightly open with the blade or handle of a budding-knife while the grafts are being put in; and the tension of the stock is often sufficient to keep them in position without any further fixing; but a handy and ready means of fixing them is by transfixing them with one of the *Pereskia's* spines; or, failing in that way, they may be tied on. It is not necessary, nor even desirable, that the stocks be rooted before being grafted. Not only does previous rooting involve a loss of time, but the strong, ripened shoots of the last growth are in better condition for working than when further solidified during the process of rooting.

Cut up the shoots to the required length, then insert the number of grafts thought desirable in the manner advised, and pot each stock in a small pot, placing them all in the propagating house or in any fairly moist pit where the temperature ranges about 65°, and where in the course of a few weeks the stocks will have rooted, and the grafts become united to them. In order to make the most of them, they should soon afterwards be shifted into slightly larger pots, and tolerably larger heads may be grown in 48's. [Five-inch pots.—ED. MAG.] It is advisable to afford the plants a temperature of about that recommended for propagation, when, if all goes well, they should make nice decorative plants in the space of one year. As the autumn approaches, less heat and moisture must be given, and at the same time more air, until they are in a state of comparative rest, when a temperature of 50° will be ample. From quarters such as these the plants may be brought on into flower in succession by putting them into more warmth. After the plants have done flowering, growth should be encouraged in the same manner advised for the previous season.

The *Pereskia* is a vigorous rooting

plant, and with ordinary care, may be kept in good condition for several years; but when the heads get large and top-heavy, it is advisable to break them up for stock. Although the Cactus is not particular as to soil, a compost of good loam with enough sharp sand mixed in it to render it porous, and a good sprinkling of old lime mortar-rubbish, is a good mixture. The drainage should be good.

MANURES.

The following extract is a portion of an article on "Manures" by the lucid and able writer, J. J. WILLIS, in *The Gardeners' Chronicle*:

SOIL FERTILITY.

The stock of fertility which exists in productive garden soils, though generally large, is for the most part in a very insoluble form. For instance, the combined nitrogen which is the product of previous vegetable and organic life, forms the chief source of nitrogen for the future growing plant. Before it is assimilable by the plant, however, this combined nitrogen undergoes a process of oxidation, which is due solely to a living organism within the soil. The nitrates thus formed are absorbed by the plant, when its manuring properties are exceedingly active.

The mechanical operations of plowing, digging, raking, hoeing, etc., which take place in a garden, have for one of their objects the promotion of oxidation, and the formation of nitric acid. Abundant crops depend very much upon the capacity of the growing plants to take up the few pounds per acre that is produced of this most important ingredient of plant-food, and the skill of the gardener is displayed in so arranging his methods of culture and course of cropping, that the nitrates so liberated shall be a source of profit instead of loss.

Sir J. B. LAWES describes a fertile soil as one which is competent to liberate a considerable amount of active nitrates from its store of combined organic nitrogen; while an abundant season is one in which the crop is enabled to take up an unusual amount of this active nitrogen.

But if the amount of fertility liberated by the bacterial organisms, or nitric ferments, as they are sometimes called, were sufficient to produce full crops, there would be no necessity for applying manure; it is quite evident, however, that such is not the case.

Some soils, it is true, require but little aid, owing to their inherent richness; but there are others—more especially those of a light, sandy character—that are almost entirely dependent on the fertility they get from external sources. Practical experience has shown in different districts, and on different classes of soil, what is required to grow full and remunerative crops.

The first problem, therefore, which a gardener has to solve, we take it, is to preserve the present stock of soil fertility, and to increase the accumulation of plant-food for future use. It is true that the stores of mineral food—potash, phosphoric acid, lime, and the like—in the soil and subsoil of our best garden soils accessible to plants are very great, and it would require many years of cultivation, and removal of crops, to entirely exhaust the supply, yet we may fairly assume that the system of horticulture which

leaves the soil in an impoverished condition is certainly not an economic one to follow.

* * * * *

ATMOSPHERIC RESOURCES OF PLANT-FOOD.

It is entirely fallacious to suppose that garden crops, whether flowers, fruit, or vegetables, gain a large amount of nitrogenous plant-food from atmospheric sources by means of this extended leaf-surface. The quantity of combined nitrogen brought to the soil and growing plants by rain-water and the atmosphere is so inconsiderable an amount, when compared with the whole weight required by the crop, that we may fairly say no plants are more dependent on nitrogen in an available condition within the soil than are garden vegetables. No matter how good the normal condition of the soil may be, it will not long produce paying crops of vegetables, or even fruits, without manure. Certain it is that if a garden will not pay with liberal manuring, it will not pay without it.

CROSS-FERTILIZING CORN.

On page 71 of the MAGAZINE, in an article by JACOB MOORE, on "Cross-fertilized Corn," he says: Cross-fertilization is not apparent the same season in which effected. This idea I have had disproved by my own experience frequently. Last spring I sowed a row of Blue Corn, a sport found amongst some white. On the west side of this were several rows of Evergreen Sweet Corn; on the east two rows of red, and beyond these yellow Indian Corn.

When I came to husk the crop I found the result to be as follows: The rows of Sweet Corn next the blue had separate kernels of the other varieties scattered all over the ears; the blue had sported into endless colors and variegations, every color, except black, might be found on the same ear, even a pure green was apparent in several. The rows of red had much the same appearance as the blue. In the yellow Corn the rows next the other kinds had entirely lost their identity, some ears being red, others white, blue, yellow and variegated. As the outer rows of yellow Corn were too far away to be pollenized by the others, they remained perfectly true in color and appearance. The pollen of the Sweet Corn seemed quite inoperative on the pistils of the common varieties, as on them not a single shrunken kernel was found.

The various species of Cucurbitaceæ are much affected in both quality and appearance by too near proximity to each other. Yellow and red Tomatoes, if too close together, will vary in color, and

sometimes will even exhibit distinct stripings of the two colors.

Where a Russet Apple tree grows next a yellow summer variety, and the branches touch, I have picked Russets which were much altered in appearance and flavor, being sometimes smooth and yellow and often striped. Last year the two trees bloomed two weeks apart, and consequently the fruit was normal.

As you will see by the enclosed article from an Australian paper, Citrus fruits are greatly changed by cross-fertilization.

P. W. A., *Arcola*, Ill.

ZEPHYRANTHES DRUMMONDII.

I had one hundred bulbs of the above named variety sent me from Austin, Texas, and have found them so pleasing that I will describe them for readers of the MAGAZINE. These bulbs are natives of Texas, and have a strong, large, roundish, black bulb, almost as large as a goose egg. Foliage long and flat, lying close to the ground; flower stalks thick, surmounted with one flower, pure white, lily-shaped, crinkled. Their habit of flowering in June, when most of our spring bloom is exhausted, renders them valuable in our climate. They have proved perfectly hardy here, having been planted out in open ground, where they have remained ever since, without any kind of protection. They are very lovely to mix in with other cut flowers, and remain fresh in water several days after being cut.

MRS. J. S. R. T., *Spartanburg*, S. C.

THE BORDER LAND OF SPRING.

"All the Blue Bonnets are over the border."

Between the winter and the summer is a border-land. It does not belong to the snow, and the grass doth not own it. For many days the forces of nature wage war over this strip of seemingly waste moor, possessed by neither winter nor summer, yet bordering on both. The wind howls; it is the sounding of trumpets. The hail descends; it is the rattle of musketry firing. The snow fills the air thick as the smoke of battle, and when the sun pierces the smoke there is seen the flashing of lances. All the while this conflict rages the grass is gaining ground, the rain is nourishing the root, and the sun is busy painting each spear with the colors of summer. Finally the trumpets

cease their sounding, the clouds of battle clear away, and the sun shines on the grass in quiet possession of the disputed territory.

With the new reign comes a new order of things. White butterflies sail over fresh greened meadow lands, summoning from sleep the blue bonneted Violets of spring. When the sky color of their blue bonnets glow in the meadows, along the highways and in the hedges, it is nature's Easter. At this time there is a holy convocation of their blue bonnets and clinging green gowns in every nook and corner of the green earth. Sometimes in their coming they tread on graves. The blue hoods of the Meadow Violets are often seen bowing over grass-grown graves, and if ever the dead smile in their sleep it must be when the Blue Bonnets step on their graves, for they bear a message of joy to the living. "We were buried, but at His word we have waked to life again," is the joyful truth that they herald as they cross the border. Come out into the great meadows, beyond the town, to meet the Blue Bonnets. Bow down to greet them. Tenderly take them by the hand. Love them and kiss them, it will do your heart good. Be glad in their beauty. They have a message for all. Bend the knee to receive their blessing. Their life is a mission of love, their breath a wine of fragrance for the health of the soul. Drink ye of it; so shall life be sweeter for their crossing from thence to us, over the border.

"O, Violets tender,

Your shy tribute render,

Tie round your wet faces your soft hoods of blue;

And carry your sweetness,

Your dainty completeness,

To some tired hand that is longing for you."

— SUDLEY.

IN MEMORY OF BOUSSINGAULT.

Arrangements are being made in France for the erection of a statue of the late JEAN BOUSSINGAULT, chemist, botanist and agricultural writer, and Professor in French colleges. His work on *Rural Economy*, published in 1844, marked an era in agricultural literature and practice, for therein he showed conclusively that the most important element in manures for general use is nitrogen, and that their value is determined principally by the amount of this element they contain.

LOBELIAS AS BASKET PLANTS.

The blue Lobelias, varieties of *Lobelia Erinus*, are admirable plants for baskets and vases, and are much used for this purpose. Few persons are aware, however, how fine a basket can be made by the use of the Lobelia alone. It becomes in time a mass of delicate green foliage intermingled with the exquisite blue flowers. For this purpose four or five plants at most are enough for even a

DOUBLE PETUNIAS.

Mrs. LOUDON said, years ago, that the introduction of the *Petunia* had revolutionized flower culture in England; but in this country I never could see any especial use for the limp flowers, except when massed in out-of-the-way corners for perpetual bloom. The flower wagons, in the spring, had been in the habit of offering us double *Petunias* graced with one, or possibly two, blossoms of toler-



BASKET OF LOBELIAS.

large sized basket. The soil should be light and rich, and be supplied with water as needed, according to its growth, and never allowing the plants to be checked by going dry through neglect.

Möller's Deutsche Gärtner-Zeitung describes a variety of *L. Erinus*, called *Kaiserstern*, meaning Emperor's Star, which it says is a beautiful basket plant. This variety has not yet been offered in this country. The flowers have a white center. When the flowers fade the stems should be cut away, and the plants treated in this way will continue to bloom freely.

able size, and, if, after purchasing them, we got two or three more of these blossoms during the summer, we did well.

But last summer my eyes were opened. I had procured, in the spring, a package of VICK's first-class seed, not double, for the catalogue stated distinctly that the double seed could not be relied upon; but from this non-double seed I had several plants with double flowers that were simply huge as compared with my previous knowledge of *Petunias*, and instead of giving one or two flowers at a time, they kept up a vigorous stream of blossoms during the summer. At one

time I counted thirteen of these great blossoms—large enough, turned face downward, to fill a good sized tea cup—on a single plant in a window, or rather a veranda box, and instead of being exhausted the plant had not shaken off the old petals before it was pushing out new buds to keep up its watch.

Another plant in a more favored position, not cramped in a box, spread out its flattened and gnarled stem to nearly half an inch in width, and attained, I think, three feet in height, while its lateral stems seemed likely to overwhelm everything in its vicinity. This, also, gave flowers as double as those just mentioned, as did others in the same bed—these last evidently failing to reach so large a size only because their sturdy neighbor had taken the lead.

From another package of seed, not sold as double, I had eight double ones; two of these smaller than those mentioned, but beautifully veined. Two of the remainder were exquisitely fringed, and the remaining two handsomely blotched. These last were in veranda boxes, and even there reached an immense growth.

In using for window boxes any color likely to appear from seedling Petunias will harmonize with the crimsons, purples and whites of Geraniums and Fuchsias, while for contact with the pinks and salmons in the latter plants cuttings from maroon and white double Petunias can be used.

Plant your seed in-doors or in a hot-bed in March or April, or buy your cuttings by the dozen, and nurse them with due care till May is ready to receive them out of doors.

H. E. G. AREY.

THE CARNATION FOR WINTER.

For a winter-blooming plant there is no greater favorite than the Carnation. No plant combines more of those qualities which are demanded for popular plants for winter decoration than this one. It is of vigorous growth, easily multiplied, easily reared, blooms profusely, the flowers of great variety of colors and markings, and of fine form and delicious odor; flowers keep well when cut. These form an array of good points that insure the holder of them most respectful consideration. The Carnation is easily propagated by cuttings and layers, and once

having a stock one can perpetuate it, though the facilities may be only a window and an open garden border.

Thrifty young plants procured in the spring can be grown on through the summer, and the object should be to get as large and strong plants as possible before blooming commences.

One who raises house plants should keep on hand the materials, such as loam, sand and manure, to combine properly for the kind of soil needed for particular plants. A good character of loam is one of the most essential of these materials, as florists and greenhouse men well know, and they are very careful to keep themselves well provided with it. The amateur plant grower should provide it as surely, since but little of it will be needed, and therefore a supply not difficult to keep up. A few wheelbarrow loads of sod piled up, with the grass side downwards, will in the course of a year decay so as to make a mellow, fibrous soil. This is the foundation of a good pot soil. Now, with some of this soil mix half as much old rotted manure and some sharp sand, and a compost will be formed which will be admirably suited to Carnations, as well as many other kinds of plants. The sand keeps the soil porous, and the materials of plant food are present in available form.

Pot the little plants of Carnations in this soil whenever in the spring they come to hand. Put them in small sized pots at first, and when the roots have reached the sides of the pots shift the plants into a size larger. When the weather becomes settled, in June, the pots can be plunged in the open border with their rims below the surface. If the weather should be dry see that the plants do not lack for water, and shift into larger pots as necessary. Some time in July the points of some of the shoots will indicate a tendency to bloom, and when this is noticed they must be cut back, going over the whole plant and taking off the points of the shoots to the first bud from the top. Whenever buds form repeat the operation. After the first of September the buds that show can be allowed to remain, or a portion of them can be removed. Before there is danger of frost the pots must be lifted and taken to the house, where they can be kept for a time without fire heat. Pot

any plants that need it. Placed in the window and the temperature kept moderately low, the plants will continue to grow and to bloom during the winter.

The varieties of Carnations shown in the colored plate of this number are some of the best in all respects. The white variety with edge entire or plain is L. L. Lamborn, a very fine blooming kind, and with long flower stems. The other white with fringed edge, is Hinzie's White; this has a very large flower, and is in all respects very excellent. Buttercup, a light yellow streaked with light lines of carmine, will be noticed as a handsome, compact flower. Partly above and to the right of the last is J. J. Harrison, a large flower, pearly white, penciled and bordered with rosy-carmine. Back of the last is seen a portion of a flower of Tidal Wave, which has been expressively styled the "Pink of Pinks" for the cut flower grower, on account of its many valuable qualities, among which are a dwarf habit and great blooming capacity. Lastly, standing out and above the others, is Portia, a handsome bright scarlet.

The above are only a few of the many kinds that the Carnation grower can select from, and the variety is sufficient to satisfy all tastes.

STEPHANOTIS AND DAPHNE.

Perhaps some of our Southern readers may be able to give the advice desired by the writer of the following communication from Hillsboro, Texas. If the plants referred to retain their foliage, as appears to be the case, we cannot see why they should not make growth, if they are properly potted and with suitable drainage. If the pots are clogged up the roots cannot remain healthy. This should be the first point to examine. We hope to hear from any one who can throw any light on these peculiar cases:

I would like to have some instruction from you, or some of the readers of your MAGAZINE, on the culture of some plants that I have and cannot succeed in getting them to grow. I have had a *Stephanotis floribunda* two years, and it has not grown an inch in all this time. I have coaxed it every way that I know, with no success. Another is *Daphne odorata* that I have had about the same length of time; it has grown some and looks

healthy, but I don't think it has done as well as it should,

We have a black, waxy soil that is very productive, and I mix this with leaf-mold, soil from an old cowpen, and sand; these make a nice soil for Geraniums, Begonias and other plants. Fuchsias are among my favorite plants, and I have failed completely in growing them here. I don't know whether it is the alkali in the soil, the hot winds, or both combined. I have tried keeping them in the shade, protecting from wind, and placed the pots in larger ones and filled around with sand which I kept damp, and yet they will not grow and bloom, they just barely live. I have been very successful with them in Tennessee. Heliotropes do not grow well here in pots, and only do moderately well planted in the yard. Roses grow splendidly in fact, everything except the few plants that I have mentioned grow luxuriantly, and bloom profusely. Any advice that you can give in regard to the plants enumerated I will appreciate very much, for I am anxious to have them bloom, as I have never seen the *Stephanotis* or *Daphne* blossom.

A. R., Hillsboro, Texas.

SOME TEXAS FLOWERS.

I think Texas has more lovely wild blossoms than any other place where it has been my good fortune to live. I came here only the last of January. The Peach, Plum and Cherry trees were in bloom then, but a severe norther struck us and quickly withered the precocious embryo fruit. The trees are again in bloom now (April twelfth), and in a ramble of less than half a mile I gathered a large handful of blossoms, which I send you by this mail. *Castilleja* forms a scarlet sheet all over the meadows and pastures. It is what, in Missouri, we called Indian Pink, but of a different shade. Then there is the Rattlesnake's Master,* pink and royal blue. There is a trailing vine which resembles our hardy purple *Aubretia*, but has crimson blooms, like a single *Portulaca*. Also, pink pea bloom Clover, a purple and white trailer, with pea blossom shaped flowers. The Star Grass† is very lovely with hundreds of bloom all over the roadsides and fields.

* *Eryngium*. (?)

† *Hypoxys*.

There is a blossom, of which I send several white ones, which remind me in foliage of the *Anemone coronaria*, but these are not bulbs, and are purple, pink and white; the Texans call them Daisies, but I find Daisies, also, of white with yellow eye, and wild Phlox. We have the Sensitive Rose,* and I am just now finding the American Ivy in the woods. I hope to find and tell of many more of the Texas beautiful flowers as the season passes.

M. C. B., *Scurry, Texas.*

HOW I SUCCEED WITH DAHLIAS.

The Dahlia combines in its double form perfection of blossom and delicacy and variety of tints; and few other flowers possess such durability after opening. In fact, among all our summer and autumn blooming plants there are very few, comparatively, that will equal the Dahlia in this respect, it often being two weeks or more from the time the flowers begin to expand until they fall.

Having been almost uniformly successful in obtaining a profusion of blossoms from these plants during a period of nearly twenty years, perhaps a few hints and suggestions as to my method of care and treatment may interest your readers.

To begin with, having no greenhouse or hot-bed to devote to this purpose, I start them about April first in boxes of soil beside the kitchen stove. The boxes are of considerable depth, twelve to fifteen inches; in the bottom I place two or three inches of horse manure fresh from the stable and packed quite solidly, thus providing a little bottom heat. This is covered with soil on which the bulbs are placed, so they will come nearly to the top of the box, and light, mellow soil covers them.

As it takes them some time to push the eyes above the surface, the weather is generally mild enough by the time they have appeared for the boxes to be placed out of doors during the day, and except on cold nights; and the plants are much better and stronger to be kept back pretty well in growth at this time, but they should not be left out when it is cold enough to chill or seriously check them.

When all danger of frost is past they should be transplanted to the flower gar-

den, where, according to my experience, a position that is partially shaded, especially from the mid-day sun, is preferable.

One point, which I deem quite essential, as to location, is to plant them close beside or near a much used path through the lawn or flower garden, where frequent passing to and fro serves to disturb the dahlia fly and prevent its ravages, of which there is great complaint in our locality. This insect stings and blasts the buds; but I have had very little trouble with it, and attribute the freedom from it to planting, as I have suggested, where we pass by them very often, as this seems to frighten them away; the frequent shower baths which I give them by throwing over them any cool suds or wash water I may have tend also to keep them down.

I find that the plants fairly revel in an abundance of drink of this kind, and reward me for it by a profusion of the most perfect blossoms. Unless the soil is very rich the addition of a considerable amount of manure seems to add to the size and profusion of blossoms, and this I give by digging quite a large hole, say eighteen to twenty inches in diameter and a foot or more in depth, which I fill with horse manure to a few inches below the surface, and cover with soil, and then plant the Dahlias over it.

Care should be taken not to cover the tubers too deep, especially if the soil be heavy. When well matured the tubers will keep in any dry, frost-proof cellar, with about the same care that is given Potatoes, though they will not stand quite so great a degree of cold and come through uninjured.

In my heavy soil they do not always mature well, especially if the soil be too wet and cold; but even if one has to send away for new bulbs every spring, the expense would not be great as compared with the enjoyment derived from them.

The above method of starting about April first secures early flowering plants, so that, with me, the Dahlia is a summer flowering as well as an autumn flowering bulb; but the bulbs may be planted directly in the open ground from the first to the middle of May, and be given the same after treatment, when desired only for fall flowering.

E. J. BROWNELL, *Franklin, N. Y.*

* *Schrankia*.

THE WEEDS AND THE FLOWERS.

I wish I had a garden all my own
Of rare, sweet flowers, and where the vine has grown
To cheer the passer-by, and bless me, too,
With occupation and with health's bright hue.
No land have I but this small patch of weeds,
A door-yard, such as every housewife needs ;
A garden, such as I would fain enjoy,
Is mine in dreams alone, not for employ.

Reflecting thus, I snatched a weed, in haste,
And said, O, why this strip of ground be waste ?
I'll set out from a box, now full of roots,
The red Petunia, then new little shoots
Will spreading grow, and here, at my back door,
I'll have a dozen blossoms, if no more.

'Twas strange how many staggering weeds I found,
All growing strong and covering the ground.
And as I pulled the weeds and placed with care
The plants I loved, and left them smiling there,
These lines came in my mind as quick as thought,
I give them here, and you may read or not ;
I like them, for to me they're strictly true,
And bid me take of life a fairer view ;
They teach me that we might have brighter hours,
And see life's weeds supplanted by the flowers.

THE LINES.

Where weeds will grow the flowers can bloom,
And clustering fruitage shed perfume ;
Where briars and thorns oppress the ground,
The Rose and Lily might be found.

Then pluck the weeds, the briar and thorn,
And with the Rose life's path adorn ;
Let its sweet odor fill the air,
To banish grief and lighten care.

Where sadness reigns, smiles should appear,
And hope's warm sunshine dry the tear ;
Where sorrow fills the heart with woe,
True sympathetic love should flow.

Then dry earth's tears ; quell grief and pain
With love which answers back again,
Till this cold world of want and care
Bloom as a garden everywhere.

M. D. M.

"THE BOTHERING GREEN-FLY."

I have four hundred and fifty Rose bushes in my glass-house, and I can at any time pick all the Roses I care for myself, and plenty to send to my friends and neighbors. Roses require a great amount of care ; if it is not one thing the matter, it is another. The first is mildew, I got along nicely with that ; I mixed sulphur and lime and painted all the hot water pipes, and that keeps the mildew away. The worst thing I have to contend with is what my gardener calls "the bothering green-fly," bother with them. Formerly, twice a week we used to dampen tobacco stems, put them in a tin pail, set fire to it and let it smoke away, and the green-fly would soon disappear. But this was a nuisance ; every

plant that was subject to the effect of the smoke had to be put away under the bench while the smoking was going on.

Plants like Marguerite, Heliotrope, Coleus, Callas (it does not harm the flower of the Calla, but the leaves), and many other plants I might mention, do not like the smoke, and every time we did smoke some plants would be forgotten and ruined. But we found a remedy. I went to the tobacco store and bought what they called "shorts" of the fine cut chewing tobacco ; we rubbed this in our hands as fine as it could be rubbed, and took a pint tin pail and had a cap made for it. In this cap we punctured a dozen holes with a nail, and it looked like a large sized pepper box. We first syringed the Roses, then filled the can with the tobacco dust and sprinkled it on the bushes. We put it on quite thick. This was done about six o'clock in the evening and was left all night, and in the morning we again syringed the Roses, and the "bothering green-fly" had gone to glory. We have used this preventive for over three months ; it does not hurt the leaves nor the buds, and it is a sure way to get rid of this pest on the Rose bushes.

I would like to tell you in a few words about my first attempt to grow Roses in a bed. In the greenhouse we had made a bed, six feet wide and forty feet long, ten inches deep, and raised three feet from the ground so as to be near the glass. In this bed we put two hundred and twenty-five Rose bushes. We looked for a big crop, but the Roses did not come very thick, and what did come did not look very healthy, so we put on manure water and other fertilizers ; but the more we put on the fewer the buds. We found that the ground had become soggy, and the more water we put on the worse the bushes were, and that it was not the fault of the bushes, but our own fault in not having a circulation of air and sufficient drainage. A three-inch augur was then taken, and one hundred holes made in the bottom of the bed. Then the water could soak away and the air circulate around the roots of the bushes. In less than a week our bed began to dry, and in three weeks from that time to the present day we have picked from twenty to thirty every day. The same principle will hold good in all potted plants ; they must have plenty of

drainage or they will get soggy, and will give no bloom.

M. D., *Syracuse, N. Y.*

ORNAMENTAL ASPARAGUS.

How do you increase *Asparagus tenuissimus*?

H. E. R.

All the species of *Asparagus* cultivated as ornamental plants can be increased by division of the roots, allowing at least one crown to each part. *A. tenuissimus* may also be propagated with no great difficulty by cuttings, giving them bottom heat.

APPLE SCAB.

A series of experiments conducive of valuable results was concluded last year, by E. S. GOFF, Horticulturist at the Agricultural Experiment Station at the University of Wisconsin. The experiments related to the treatment of apple orchards for the prevention of the scab, which greatly disfigures and deforms the fruits of some varieties especially. A description of the tests, prepared by Mr. GOFF, has been published and sent out by the Station named. From this we make the following brief notes:

This apple scab is a parasitic fungus, known scientifically as *Fusicladium dendriticum*. It is this fungus that spots and scabs the fruit, and often causing it to crack, in a manner familiar to most people. Apples badly affected are less developed on the scabby side, thus check the growth and distorting the fruit. The parasite not only exists in the fruit, but also on the leaves and the new shoots. In this manner the vitality of the whole tree is impaired. As affecting the leaves the parasite produces velvety spots, mostly on the upper side of the leaf of an olive green color when young, but which appear later as dark, sometimes almost black, portions on a pale background.

"The spores, which are produced in very large numbers, are blown about by the wind, and lodging upon the leaves, fruit and young shoots, germinate, thus propagating the disease. A moist atmosphere favors the development of the fungus, and hence the scab is most prevalent in wet seasons, in closely planted orchards where the free circulation of the air is restricted, and on the lower branches of trees, especially when these hang near the ground."

Without detailing the especial routine of the experiments, we mention the best results attained. It was that of spraying with an ammoniacal carbonate of copper solution. All the trees operated on were of the Fameuse variety, one particularly infested with the fungus. The solution named was prepared "by dissolving one and one-half ounces of carbonate of copper in a quart of ammonia (strength 22 Baume), diluting with ninety parts of water."

At the time of the first spraying the petals had all fallen from the flowers, but the young fruits were scarcely the size of peas. The sprayings were repeated on May 30th, June 4th, June 17th, July 1st, July 24th and August 10th.

It may be said here that tests were made of four other substances on the same number of trees, and the same number were also left without spraying.

The result of the spraying with the solution mentioned was 75 per cent. of the fruit thus treated was assorted as first-class.

The trees not sprayed gave 23 per cent. of first-class fruit, nearly 54 per cent. of second-class, and nearly 23 per cent. of third-class.

Mention is also made that "the fruits from the sprayed trees that by the standard adopted were necessarily placed in the second and third grades were much superior in average quality to those of the corresponding grades from the check trees"—that is, the trees not sprayed. "The reduced size of the badly scabbed fruits which does not appear in the numerical computation, also created a manifest difference in favor of the spraying."

The number of applications necessary to be made has not yet been determined, but undoubtedly a much less number than was given in the present instance.

In conclusion, it is recommended for orchards where the scab prevails to use a solution of one ounce of carbonate of copper dissolved in one quart of aqua-ammonia (strength 22 Baume), diluted with one hundred quarts of water. Thus, *four ounces of carbonate of copper and one gallon of ammonia will make 100 gallons of the diluted solution, which is sufficient to spray 50 large or about 75 medium trees once.*

The ammonia should be kept in a glass or earthen vessel, and be tightly corked

with a rubber stopper. To this add the precipitated carbonate of copper at the rate of one ounce to one quart of ammonia, in which it dissolves, forming a very clear, deep blue liquid. When ready to commence the application, add this solution to the water used for spraying, at the rate of one quart to twenty-five gallons of water. The bottle containing the solution should be kept tightly corked. The liquid should be applied with a force pump with a spraying nozzle.

It is advised not to add London purple or Paris green to the above solution, as the ammonia renders the arsenic in them soluble, and thus liable to injure the foliage. The mixture for the different purposes will not, however, result in any injury if applied separately, though even but a few hours intervening.

THE MIGNONETTE.

A correspondent inquires about the procedure in raising Mignonette in tree form. The larger growing varieties are best for this purpose, especially *Reseda odorata grandiflora ameliorata* and Parson's New White. A number of years since a writer in the *London Garden* described the method of growing with much minuteness, and the essential portion of it is here reproduced:

The best compost for Mignonette is a good sound loam, with about one-fourth of its bulk of thoroughly decayed manure, reduced almost to the appearance of black mold, if obtainable, with a good sprinkling of charcoal broken small, or old mortar or plaster from old buildings, and in all cases let the pots be well drained. When the young plants are large enough to distinguish which is likely to make the strongest specimen, let that one be retained and the others drawn out, so as to have only one plant in each pot, and let that be secured to a short stake to keep the stem straight. Shift the plants into larger pots as they require it, never allowing them to become pot-bound, and keep the leader always in advance, pinching off all flowers, and any shoot that seems desirous of outgrowing its fellows. As the season advances the plants may be placed in a deep, cool, rather moist pit, or any place, such as a north house, where the heat of summer will not, by causing the undue ripening of the wood, check the growth and push the plants into flower. Till the end of August the object should be growth; therefore, keep the plants in a growing atmosphere, and see that they do not get pot-bound; and let each plant be supported with a good stake in the middle of the pot, with the main stem tied to it. But any one who wishes to see what size Mignonette is capable of growing to under favorable conditions, should select one or two of the most thriving plants when they have attained a height of three feet or so, and plant them out in good soil in the conservatory border, and only allow them to bear a few flowers the

first winter. Plants so treated without check, and attended to in pinching and training, will show that the prefix, "tree," is not a misnomer. If standard plants are desired, the side shoots must be pinched back to one pair of leaves—that is, leave one clear joint from the stem. When the leader has attained the requisite height and the head is formed, those little spurs may be cut off. In potting, the last shift should not be later than the end of August; and when blooming begins, a soaking of weak liquid manure may be given occasionally.

AZALEAS—CHINESE LILIES.

Will you please inform me what treatment I can give my Azaleas? They look thrifty, but do not blossom. Do they require a rich soil?

Can you tell me how to keep Chinese Lilies? Will the same bulbs blossom the second year? I have a great many of them and dislike to throw them away. They have blossomed in great profusion all winter. Are they of any use for the second season?

L. A. C., *Buffalo, N. Y.*

A suitable soil for the Azalea is composed of equal parts of peat and fibrous loam. Where peat cannot well be had, a mixture of well rotted turfy loam, leaf-mold and sand will do well. The plants can be repotted as soon as the blooming ceases. Give the pots good drainage.

By Chinese Lilies, we suppose, is meant the Narcissus. The bulbs, after blooming in water, are not of much use for the next year. The best way is to set them cut in the open ground and leave them to flower there the next season in such manner as they will, and get a new stock for house culture.

SUNDRY PLANTS.

As I am a subscriber to the *MAGAZINE*, and have read so many good things in it in regard to plants, I take the liberty to ask a few questions.

What treatment does a Day Lily require? Mine is one a friend gave me, last summer. I wintered it in the cellar, brought it up about the last of February, cut the dead top off, and in a short time it commenced to sprout up. It now has three large leaves and the fourth coming. I am very anxious for it to blossom; it sets in a northeast window.

I also desire to know what treatment to give Fuchsias, and whether a north window is a good place for them?

What treatment must be given Chrysanthemums? Last spring I procured roots from a greenhouse and set them in the garden; they did very well through the summer considering the dry season. I brought them in the house before frost, but they did not blossom. Wintered them in the cellar. This spring, when I brought them up, I cut off the dead tops, and new shoots have started, but they do not look as thrifty as I think they should. I want to know what I should do with them to make thrifty plants for next winter's blooming.

J. M., *Elmore, Minn.*

Plant the Day Lily in the garden, and leave it there. It is hardy, but as winter

comes on give it a covering of dry leaves.

Fuchsias may do well in a north window, but they love heat and moisture, and if they are to thrive these requirements must be met.

Divide the Chrysanthemum plant at the root, so as to have only one shoot with a small piece of root. Raise up a plant from this, and keep off all suckers. In your climate it will be best to keep the plant in a pot. When it fills the pot with roots, shift into a size larger. Keep it growing through the summer, and pinch off any flower buds that may appear before August. After that leave them. The best way is to make cuttings in February and get young plants in that way. The old plants are of no use. A plant should be raised up each year in order to get fine blooms.

UNFERMENTED GRAPE JUICE.

Last October we put up five dozen bottles of grape juice to keep in an unfermented state. The operation was very successful, and the juice is now in exactly the same condition as when bottled. Ripe Isabella and Concord Grapes were taken and carefully picked from the stems, not allowing an imperfect berry to be used; this secured juice of the greatest purity and without the astringent principle of the stem, which would have resulted if the whole cluster had been thrown into the hopper and ground and pressed. Good bottles and long corks of the best quality and a wax, made of resin and tallow, had been provided. The juice was immediately bottled after running from the press, and then the bottles were set in the boiler of water, and kept in until the juice had acquired the temperature of the water, or 170°. Heating to this point destroys the germ of the fungus which produces fermentation, and the flavor of the juice is not altered as it is when allowed to boil. When the proper temperature was secured the bottles were removed and securely corked, driving the corks in full length by the use of corking apparatus. The juice must not entirely fill the neck of the bottle, but room be left for the cork, otherwise the bottle will be broken when the cork is driven home. As soon as the corking is done dip the head in melted wax, and from that time the

winekin is secure, no fermentation being possible. By filling the bottles to the rim at first the expansion of the juice by heating will cause the sediment to rise to the top and overflow, and although this musses the bottle, yet, by a little attention, a great portion of the sediment can be collected and removed, thus obviating the necessity of racking off. Though some sediment will be left, yet careful handling when the bottle is opened the liquid can be poured out without running off the settlings.

As a drink this fresh juice is tasty and healthful, and for home use can be prepared as above in quantities to use the year round.

We do not think it will ever be generally used as a popular beverage, for the necessity of keeping it constantly in glass makes it far more costly than wine.

A FEW POINTS.

Our readers will recognize the signature H. E. G. AREY, on page 156, as that of the author of "Myself." It is a pleasure to us that she should be enrolled on our list of contributors, and we trust that the signature may be frequently seen hereafter in the same connection; the statements made in regard to the value of the Petunia will be very generally approved; it is one of the most valuable of the flowering annuals.

The series of articles, which has now reached No. 7, entitled "A Beginner in Fruit Growing," will be noticed as the work of one who has himself done what he advises for others; in other words, the methods advised are entirely practical, and cannot fail to be of use in guiding the course of the young fruit grower.

P. W. A., on page 153, answers JACOB MOORE's article in the March number on cross-fertilization of corn, and evidently the experiences are in direct opposition and the conclusions of each are as strictly opposed. Both cannot be right. The writer mentioned, in his present contribution, goes away from the subject in alluding to the fruits of Cucurbitaceæ and Tomatoes, and in fact all other fruits. Whether fruits are affected by cross-fertilizing is a question not considered settled, but it is well known that a grave change is at once effected in the seed by cross-fertilizing, and it has been thought not improbable that this change might

affect the external appearance of the seed. This, Mr. MOORE claims, his experiments disprove, while P. W. A. holds to the contrary. Both will agree that cross-fertilized seeds will show the extent to which they are affected by their future generations, but they disagree upon the change of external appearance in the cross-fertilized seed.

A STATE EMBLEM.

Californians favor the *Eschscholtzia*, or California Poppy, for the floral emblem of their State. There is a legend that the name of the entrance of the Bay of San Francisco, the straits called Golden Gate, was given it on account of the sight of masses of flowers of the California Poppy, like sheets of gold, on the foothills.

ARBOR DAY.

The Friday after the first day of May is Arbor Day in the State of New York, and this year it is the second day of May. Judging from the weather at the present time much of the tree planting in this State will be done before that time. But that will be as well. Trees should be planted when the conditions for that operation are most suitable, and Arbor Day should be celebrated by meetings for the purpose of learning about trees and other plants, acquiring a knowledge of their qualities and usefulness, and encouraging a zeal and desire to improve our country and beautify our homes and roadways and public grounds with suitable trees, shrubs and flowering plants. Such meetings should be held in our school-

houses, and invitations should be sent, or notice given, for the public generally to be present and listen to and participate in the exercises. We hope this year to hear of the observance of the day being more general than the last; as that was the first one in this State but little was understood of the requirements; now the matter is better known there should be far greater interest manifested.

SOWING FLOWER SEEDS.

Starting seeds in boxes in the house is not always a success, but I find there is a method of doing so that will meet the approbation of those troubled with seeds long in germinating and of damping off. I heat soap stones quite hot twice a day and place under the boxes. Bricks or flat stones will do. The seeds, under this treatment, spring up quite as quickly as in a hot bed and seem to do as finely. The seeds that I sowed, covering only with sand, never allowing it to dry, came up sooner than where sod was used. It is admirable for Pansy seed, as it takes the place of moss as a shade. I never succeeded before in starting them earlier than ten days, and often fifteen, after sowing. A shallow box about two inches deep and one foot long, six inches wide, is useful for starting all kinds of seeds, and easily handled, and can be placed upon the reservoir at night, which is better than a stone, as it will retain heat until nearly morning. Turning a box over it on a cold night is an improvement.

MRS. HOSKINS.



OUR YOUNG PEOPLE.

A COUNTRY BOY'S TRIAL OF THE CITY.

"You're stepping on the garden!" called out the housekeeper to a new guest in the back yard—a niece of the invalid hostess.

"Where is any *garden*?" was the retort from the dismayed girl, standing stock still, surveying her surroundings of smooth turf.

"Right there, under your foot," was the answer. Miss Curtis sprang to one side, and sure enough, there was a little patch of smooth earth in the broken sod. It was so small she had not even seen it when she stepped off of the walk to get a nearer view of the caged parrot, suspended from a tree, and saucily calling out, "Who are you—who are you?"

The maid coming out to repair damages, the chagrined trespasser asked why that was called a "garden," inasmuch as it was too diminutive to be called a "bed" even.

"Because it has to be called a garden at this house, no matter what its size may be. I never heard of anything of the kind so pitiful as is its history. When your aunt became established here, soon after your cousin was bereft of his young wife, and was getting reconciled to the younger son being in the city and away from her, she had a new sense of anxiety upon finding herself the victim of an insidious disease which has made her the invalid she is, though the cheeriest and most patient one I ever saw. Last summer her appetite failed her, and she often spoke of the fruits and vegetables she had always been accustomed to see growing, and supplied fresh for the table each day. Often recalling her old pleasure in seeing the young plants first peep above the soil and gradually develop into mature growth.

"Finally, when last February was fairly upon us, she began talking about wanting a little garden, this spring."

"What, here in town?" questioned her son.

"Yes, just a small patch," she said, 'in the back-yard, so that I can step out

at any time of day and see the things growing.'

"Mr. Sturgess threw back his head and laughed at the idea.

"Think of something else, mother, dear, to amuse yourself with, and you shall have it," he said, kindly.

"I can't," she replied; 'I want to be able to pick the crisp Lettuce leaves myself, with the cool morning dew on them. And pull some Radishes just when they are tender and brittle, and later on, to pick the plump pea-pods from the vines with my own fingers. And then, when Alice, (that's me,) shall have prepared them for table, how luscious they would taste, compared with those so long gathered, and brought for miles through the heat.'

"But, mother, the sod in the back-yard is of ten years' growth. How can a garden be made of it now?" her son asked.

"O, Henry," she smiled, 'Walter would laugh at you. Even he would know how. It would be some trouble, I suppose, and perhaps I'd better give it up. You never did have any interest in such directions, like Walter. He always wanted something or other of his own growing.'

"Yes, I know," said Mr. Sturgess, 'he was a born agriculturist, it seemed, until he became old enough to choose a business, and then went back on it all. I'll tell you what I can do, darling mother—I'll make an engagement now with the nearest market gardener to bring us fruits and vegetables through the season. Won't that do? And Alice, here, will raise you some flowers.'

"Perhaps so," she sighed, 'but that won't be like seeing them grow and gathering them myself.'

As the spring wore on and she grew more nervous and restless with pain—pain that was bravely borne and suppressed—she often referred to her old liking for a garden, and finally said, one day, 'I think, Henry, you may send up a

man sometime this week to dig me up an oblong strip of ground, about the right length and width for three or four cross-wise beds in a row. Alice and I will put in the seeds.'

"'Very well, mother,' he answered, cheerfully, 'you shall have your garden, if one can be made in such ground.'

"I went out that afternoon, determining to be at home the rest of the week, so as to see to the gardener when he should come. But what was my dismay on my return, to learn that a man had called, just before, announcing that he'd 'made all the garding it was wuth while to make outen grass and roots,' and wished Mrs. Sturgess much success with it.

"Well, the next day, don't you think, that dear woman had me come out here with her and, with the most patient smile on her face, suggested that we put in some seeds. But first we tried with a trowel and carving knife to cut into and loosen up the roots of the sods, which were merely turned upside down and smoothed over with a rake to level the surface. I actually saw her silent tears fall as we worked in vain among the matted roots. I insisted on borrowing a garden fork somewhere and showing her how much better I could do myself. But she would not permit it, seems never to forget that her son's wife was a relative of mine, and shows me much kindly deference.

"We finally put in two rows each of Radish and Lettuce. Then feeling how very weary her efforts had made her, she remarked, pathetically, while returning to the house, that perhaps it was just as well that the garden was no larger, after all.

"Do you wonder now that I was disturbed to see you stepping on this precious wee garden? I assure you, Miss Curtis, I was just sick to scold somebody about that time, or to do something to some one that would hurt.

"When her son came in to tea and glibly inquired if the man had been here to make the garden, I answered, 'Yes, he has; but you'll need a microscope to find it.' He knew I was vexed, but I didn't care in the least. Then he turned to his mother and asked if it suited her. The blessed woman answered with the smile of an angel that it would do very well—that she mustn't be too particular.

I had to leave the room because I couldn't keep my eyes dry, and he served the meal himself.

"He's a nice, worthy man, fond of his mother, and distressed at her illness; but, like most other men, he cannot appreciate the especial craving of many invalids for certain things—certain indulgencies, but considers them childish whims. They are not. The usual active interests of an invalid's former life are cut off by her condition. She is confined to a narrow sphere, and whatever can be brought within that sphere to cheer and help pass away the weary time should be supplied.

"I am thankful, Miss Curtis, that you have come to stay with your aunt. You can be with her more constantly than I am able to be. She is always anxious about her absent son; writes him frequent letters, reads some when not too nervous, but needs some one, like yourself, to read to her. There she is now, wondering where we are."

When Alice spoke of Mrs. Sturgess' anxiety about her son, she had no conception of the absorbing interest she felt, day and night, for his best welfare. In fixing him off for a home in a strange boarding house, her yearning love and prayers had sanctified the very garments that were placed, one by one, in the carefully packed trunk. Nothing was forgotten. The "supply-box" was furnished with needles, thread, buttons, pins, stationery, and even a box of tiny pills (at which he snorted), "to take, dear," she said, "if you should be threatened with illness among strangers. Don't be reckless of your health, nor let even a heavy cold run on and on."

He was charged to lose no time in uniting with the Young Men's Christian Association, whose members would have care over him if he should get into trouble, and whose reading-rooms would supply his leisure with a place for recreation and improvement. Most especially was he impressed with the necessity of a fixed purpose to hold fast to whatever business he had once chosen for a vocation. When the first novelty should be worn off, the regular and enforced application to duty might become irksome. But changes rarely bring success.

"Even now," had said the cautious mother, at the last, "although your

trunk is packed, and you are ready to leave, if you feel any wavering as to your plans for the future, it is better to change your mind now than later."

"My mind is fixed as a rock, mother," he had replied, "and if only you were to go with me, my happiness would be complete."

And so, after many tender and loving expressions of word and caress, they had parted.

A year has now passed; the spring is here. Four short lines of green have appeared in the garden, while a large package of letters from a city youth are often re-read by a yearning mother, who hopes soon to see the writer. The next letter will, perhaps, name the date of his coming.

But the next letter does nothing of the kind. To the mother's amazement it reads thus:

"Mother, I believe I like the country best for a boy with small means. If I had some land near the city, I'd like to start a poultry farm and have a good garden, and raise enough grain for feed. I lately read a farmer's report of his wife having made more on her fowls than he did on his pork. With one or two incubators, I ought to make money at it. I have sketched a plan for a chicken house, so that when I get enough to start with I can try it. You know I cleared about two dollars on those fowls I had when a youngster, and that wasn't so bad. Besides, I always did like to work out of doors, and have something growing of my own. Do you remember my first experience? I planted coffee-grounds on the sly, hoping to raise coffee and astonish everybody.

"I've already written of my plan to grandpa and to uncle Nelson. Of course, I've been thinking of this for a good while before I could get courage to write of it; but it had to come out at last," etc.

This letter nearly took poor Mrs. Sturgess' breath. The next one that we are allowed to copy begins in this wise:

"Please don't mention again that 'a rolling stone gathers no moss.' I'm tired of reading it in every letter. First, in uncle Nelson's, then in grandpa's, and now in yours, dear mother. I haven't rolled any yet, but am wondering where I can roll to and find a moss bed. I have secured the addresses of two or three poul-

try breeders, and am going to correspond with them. My employer here is trying to make me ashamed of such low ambition, as he calls it. But I'm not ashamed of it, and if I had two or three thousand chicks to feed and a few acres of ground I'd be happy. With a little shop, like the one I used to have at home, I could put in my spare time in winter to advantage. Any way, I'd rather do out door work and be in the open air than to be a clerk on a good salary, or follow any kind of trade. It's of no use trying to be one certain thing when you are intended for something else."

As Mrs. Sturgess finished reading this letter aloud, she exclaimed: "Well, Henry, did you ever know the like? No sort of discouraging advice can change that boy's mind. He seems dead set."

"He's like his mother," laughed Mr. Sturgess, "he wants a garden, and to insure a living he adds poultry. If it's in the grain you can't get it out. I can testify to that," and again he laughed, caressing his mother fondly as he saw her dubious look.

As we have dared to take a peep into these "truly" letters from a "truly" live boy, we'll venture a little further. Walter's next letter to his mother began thus:

* * * "Have not changed my mind yet about the poultry business. Uncle Nelson admits, at last, that there is money in it, 'if handled right.' But adds that it is generally taken up by men too lazy to work, and hence proves only a 'make shift' You all know I'm not lazy—I like work. * * * * Yes, mother, Henry is right; if this sort of thing is in the grain, it can't be got out. I knew you would have to come round at last, because you understand the hungry feeling that grows on one for the country and country things. * * * Grandpa is dreadfully worried about my wanting to change business—says the cities would die out if they weren't continually fed with the cool blood, strong muscle and clear sense from the country homes, and that I'll find my place here yet. But I never shall. * * * Russell Sage says 'Some of our most prominent men commenced wrong and then righted themselves.' Also, that 'any intelligent person can accumulate a fortune, at least a moderate one, by adopting three principles, viz., industry, economy and pa-

tience.' Another writer says that the secret of success in life is to be 'persevering, patient and untiring in the pursuit you are following.' This last would apply to the poultry business, sure, if I were in it; but could do me no good where I am. I'll toe the mark and keep square up to duty to the last hour I stay here, and try to make my employer forever sorry that I left him; but leave I must.

Am so tired of the city, I don't half eat nor sleep."

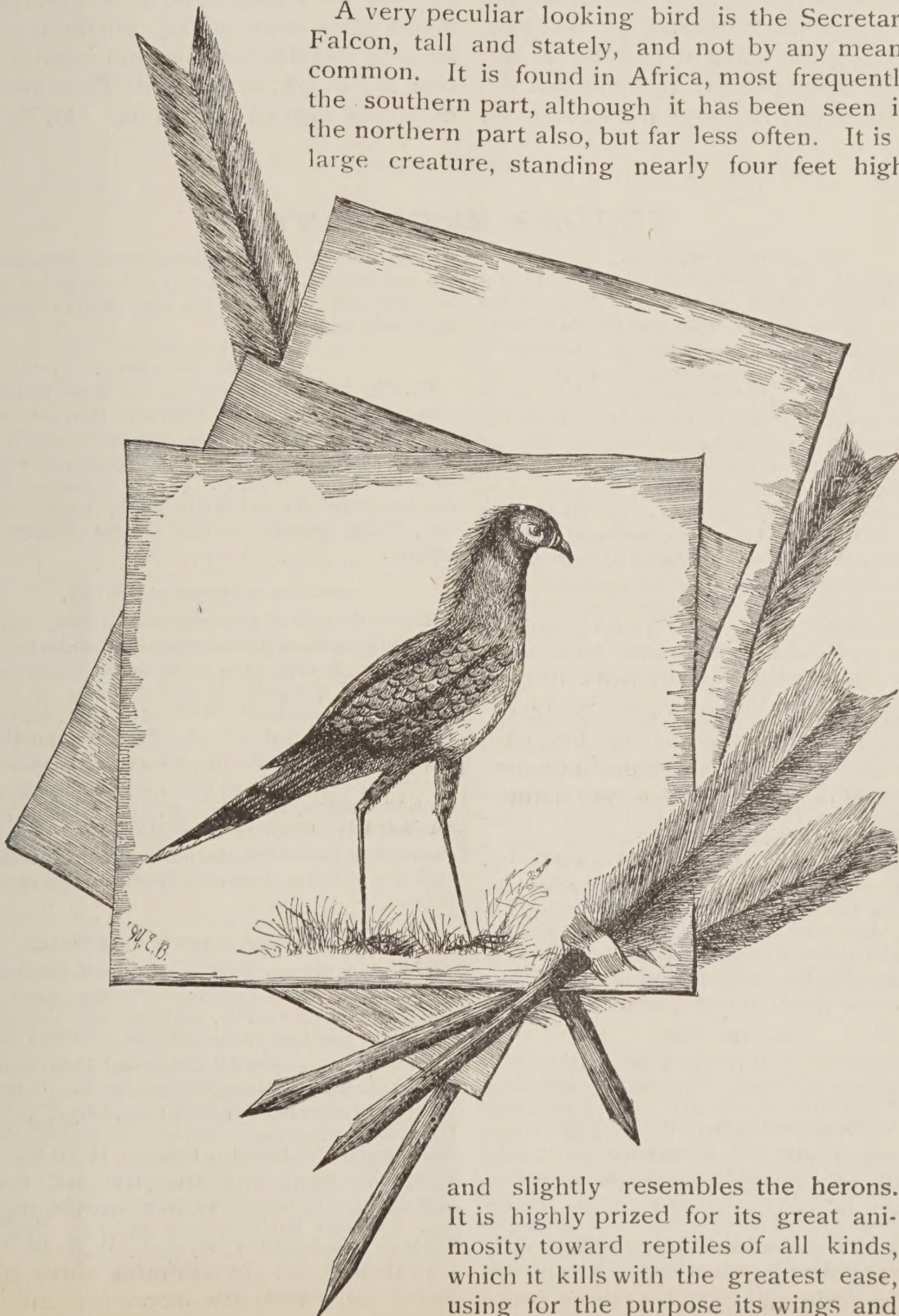
"That settles it," said Mr. Sturgess, as his mother laid down the letter, with tears, saying, "Neither do I, for thinking of him."

So, here we have one boy, at least, who leaves the city for pure love of the country.

MARIA BARRETT BUTLER.

THE SECRETARY FALCON, OR SERPENT EATER.

A very peculiar looking bird is the Secretary Falcon, tall and stately, and not by any means common. It is found in Africa, most frequently the southern part, although it has been seen in the northern part also, but far less often. It is a large creature, standing nearly four feet high,



and slightly resembles the herons. It is highly prized for its great animosity toward reptiles of all kinds, which it kills with the greatest ease, using for the purpose its wings and

claws, and even swinging its prey with its claws and, flying to a great height, drops the reptile, which falls with such force that it is killed.

The Secretary can be tamed, and is often placed in poultry yards to protect the young chickens from the attacks of serpents, but it is necessary when using it for this purpose to keep it well fed, otherwise it will take care of itself and feed on the young poultry.

It is given the name of Secretary because of the curious tuft of feathers on its head, for these give it the appearance of having a pen stuck behind its ear, as a clerk, when not using a pen for a moment, will often place it over the ear.

Serpent-eater, its other name, is given

because it lives chiefly on serpents, either large or small. The crest on top of its head can be raised or lowered at the pleasure of the bird. The plumage is a bluish gray on the upper part of the body, the ends of the wings are black. The tail feathers are gray at the top, nearer the ends they are barred with black, the ends are white.

The nests are very large, and built in a bush or tree. The eggs, usually two in number, are white with brown spots.

The young Secretary does not leave its nest for a long time, as it is unable to stand when quite young, for the legs are so long and slender that they cannot sustain the weight of the bird. They are odd creatures with an odd name. M. E. B.

EDITOR'S MISCELLANY.

DR. GEORGE THURBER.

This botanist and horticulturist of widely known reputation closed his life on the 2d of April, at Passaic, N. J., having nearly completed his three score and ten years. Early in life he became interested in plants, while making his studies preparatory to business as an apothecary, but soon learned to study them from a scientific standpoint, and then made the acquaintance of Dr. John Torrey, with the effect of fixing his career as a botanist. In 1850, as naturalist and quartermaster and commissary, he went out in connection with the government survey of the United States and Mexican boundary, and explored the country from the Gulf of Mexico to the Pacific. He discovered many new plants and made valuable notes of the flora of that region. In 1859 he was elected to the Professorship of Botany and Horticulture in the Michigan Agricultural College, where he remained until 1863, and then became editor of the *American Agriculturist* in New York. This position he held until a few years since, although he continued as a contributor up to the present year. In the pages of the *Agriculturist* he made himself well known by his able writings, which for the most part had a practical as well as scientific bearing. In 1859 he published a work well known to many of our readers, *American Weeds and Useful Plants*, a valuable treatise on the subject it represents. Dr. Thurber also contributed the botanical articles in *Appleton's Cyclopaedia*. His love of plants carried him into his garden, and he became a practical horticulturist, and thus equipped he has faithfully served the public as a writer and educator for many years.

CHARLES GIBB.

Canada lost one of its most zealous horticulturalists by the death of Charles Gibb, which occurred on the 8th of March, in Cairo, Egypt. For a number of years he had been enthusiastically working at fruit culture, and especially in introducing and testing Russian fruits to learn their adaptability to Quebec, Ontario, and the other Canadian provinces. He left home in June last to travel through Asia and Japan with the special purpose of seeing the fruits of those regions, and was on his return home when attacked with a fatal illness. His judgment, zeal and energy

had secured for him the highest esteem from gardeners and fruit-growers, not only of Canada but of this country, and his loss, in the very prime of life, will be greatly felt.

DEATH OF DR. PARRY.

Dr. Charles C. Parry died at his home in Davenport, Iowa, on the 20th of February last. He was a native of England, born in 1823, educated in this country, a graduate of Union College, and afterwards took the degree of M. D. In 1849 commenced as a botanical explorer and continued this work until the last, doing splendid service for his country and science.

PAYNE'S BUSINESS EDUCATOR.

This is the title of a volume of 600 pages, comprising a large amount of useful information for the business man. It aims to be a "complete Encyclopedia of Business Knowledge, and Epitome of United States and State Law." The author is F. M. Payne, and it is published by the Excelsior Publishing House, 29 Beekman St., New York. It is a well prepared and well arranged book, and the business student, tradesman, book-keeper, etc., will find that it answers a great variety of questions that come up in commercial operations and business correspondence, and is a valuable reference book in the counting room.

THE HORTICULTURIST'S RULE BOOK.

This is a compendium of useful information for fruit growers, truck gardeners, florists, nurserymen and gardeners generally, and not less so for amateurs with gardens of ordinary size. It is a handy book to have. In a small compass it gives much in relation to insects, plant diseases and fungi, and the best means of combatting them; methods of grafting, tables for sowing seeds and setting plants, rules of nomenclature, rules for exhibition, protection from frost, collecting and preserving plants, and horticultural statistics of various kinds, all useful or interesting. 236 pages, flexible covers; price \$1. The book has been prepared by L. H. Bailey, Horticulturist at Cornell University, and is published by the Garden Publishing Company, New York.



ABUTILON GOLDEN FLEECE.